Multi-Perspective Annotation of Digital Stories for Professional Knowledge Sharing within Health Care

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Acknowledgements

For Pauline Janet Kwiat.

And for the memory of Maurice Strutt, my father, the storyteller.

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[We] dream in narrative, daydream in narrative, remember, anticipate, hope, despair, believe, doubt, plan, revise, criticize, construct, gossip, learn, hate, and love by narrative. Barbara Hardy, 1977.

This thesis investigates the potential of narrative theory to inform the design of tools for sharing and annotating stories, in the context of professional knowledge sharing. We begin with a detailed review of the literature on modelling narrative, to establish the theoretical foundations for a narratologically-grounded annotation schema. Medicine is then selected for a tri-part study, since narrative-based approaches in healthcare education and practice are seen by many as significant.

The first part seeks evidence of narrative among medical professionals communicating spontaneously and informally online. The frequency and range of stories identified shows that this appears to be a common and valued mode of communication.

The second part envisions a Web story database ("storybase") supporting flexible annotation grounded in a narratological metadata scheme. The model draws on various narrative structure theories, and in particular, point-structure. A story can be annotated via a graphical user interface on various dimensions, enabling multiple interpretations.

The third part analyses users annotating representative samples of the stories abstracted from the corpus in part 1. Data is analysed quantitatively (annotation value clustering, questionnaire responses and task phase durations) coupled with a qualitative account of participant behaviour based on grounded theory video analysis. While this study has limitations, it validates both the expressiveness and usability of the story annotation schema, and shows that participants found the experience to be enjoyable and stimulating. Interaction analysis demonstrates the centrality of interface design in shaping annotation behaviour. This work motivates further storybase research, informing the design of future studies and storybase technologies.

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Chapter 1

Introduction

1.1 - Stories and story telling

Increasingly during recent years, narrative is acknowledged as a 'primary act of mind' (Hardy, 1977) rather than just another and somewhat inferior discourse category. As such it has provoked enquiry across a spectrum of research areas including psychology, ethnography, education and knowledge management.

Within any one of these areas too, narrative is studied in a number of different domains and contexts but there are commonalities. Those that seek to understand the nature of organisations agree that these cannot be isolated from the stories circulating within and about them (Czarniawska 1998, Orr 1990a, 1990b, Salzer-Mörling, 1998, Gabriel 1998, 2000). Those interested in the communication of knowledge, skills, ideas and ideology suggest that narrative has immersive potential that affords deeper and different understanding than that afforded by other modes of discourse such as logical argument (Bruner 1986, Schank 1990, Weber 1993, Denning 2001, McDrury and Alterio 2003), and more cautiously, in the sense that its use in such contexts *may* be appropriate, (Boyce 1996, Fletcher 1996, Snowden 2001). However, for the story teller this inevitably involves reconstructing events just to render them meaningful and memorable to themselves and their audiences.

When you are living, nothing happens. The settings change, people come in and go out, that's all. There are never any beginnings. Days are tacked on days without rhyme or reason...
...for the most commonplace event to become an adventure, you must – and this is all that is necessary - start <u>recounting</u> it. This is what fools people: a man is always a teller of

tales, he lives surrounded by his stories and the stories of others, he sees everything that happens to him through them; and he tries to live his life as if he were recounting it.
Jean-Paul Sartre, Nausea [1938]

Narrative, so pervasive in cognition, culture and society, begins early in human development. Indeed, some research goes even further, suggesting that narrative has its roots in non-verbal behaviours of all social animals (Dautenhahn 1999, 2001, 2002, 2003). According to post modern theories it is through narrative that the young child will begin to develop a sense of self and place in the world (Engel 1996, Nelson 1989, 1993). Deafness apparently does not affect this discourse ability (Jervay-Pendegrass and Brown, 1999) which Miller and Sperry (1988) suggest is the first to be acquired.

Aside from this instinctive inclination towards narrative for sharing information, it is also regarded as a functionally appropriate carrier for knowledge that is difficult or costly to codify in other ways because it is complex, uncertain or otherwise variable (Orr 1986, Hannabuss 2000, Tsoukas and Hatch 2001, Ruggles 2002), and again more cautiously (Sole and Wilson 2002) for tacit (Polanyi 1962), or knowing in action (Schön 1987). Depending on the nature of the problem there are broadly two approaches to constructing narrative. The first takes fragmentary data from perhaps several sources, and works it in ways designed to engage target audiences empathically and thereby deliver concepts to be learned, where often these concepts are practice-based skills. The second takes the experiential and the personal as it is, with little or no reworking, because here, authenticity is what matters most, regardless of what the story will be used for.

Once in circulation, there are two further qualities of narrative that make it particularly appropriate for sharing variable knowledge. Firstly, its relative pliability allows the message itself to change to meet new situations and this applies just as well to manufactured narratives and those that relate direct experience. This is partly due to a second property, that narrative is a kind of versioning but without any original copy. Even the direct personal experience story cannot be said to be wholly original in the sense that it will not have been written on a blank slate. On the other hand, versioning depends on how well the story is received; whether that is, audiences will be sufficiently compelled by their interpretations to want to take temporary ownership, to want to retell.

1.2 - Thesis context

Following from previous research in medical problem solving (Kwiat, 1999), this thesis takes for its focus of enquiry a complex professional domain that was originally narrative-based but where, with the rise of probabilistic method, there has been a gradual displacing. Only now in an established evidence-based medical culture is the value of narrative being rediscovered, researched and reintroduced, in at least complementary ways, into curricular and into practice. Narrative research is and has been active in such areas as medical education, qualitative health research, professional practice and personal-professional development. It is also being researched in a number of patient contexts.

Before introducing the thesis problem we shall look in a little more detail at the research that has been carried out to date in each of these areas, and how this thesis is situated within the field.

1.2.1 - Medical education

Narrative is valuable in medical education for a number of reasons. The story, due to its structure, is more memorable than collections of isolated facts or learning concepts. A specific example of narrative being used as an educational tool is where it provides the material basis for problem-based learning (PBL) methods. Rather than memorising isolated facts, students and student groups are presented with problems, typically in the form of context providing stories. A very closely related concept is the case base which we will discuss in a little more depth later in this introduction. In the context of PBL, problems and suggested solution cases can be seen as a lattice-like resource, constantly evolving as problems and solutions are added and new links identified.

Stories come in many kinds in medical education, the most obvious being the case (a particular presentation of a medical condition). Cox (2001) describes the case as the basic unit of: clinical work, consultation, teaching and examination, continuing education and clinical memory. Cox argues that stories can offer great advantages in all these areas, and therefore, go beyond the case per se.

Hensel and Rasco (1992) identify two hurdles that stories can help medical students and novice practitioners overcome. One hurdle is first encounters with crises, e.g. dissection, autopsy, dying and the incurable, noncompliant and hostile patients. The other hurdle is the doctor-patient relationship, and in particular, how to deal with the emotional confusion brought on by caring for difficult patients. They advise educators to keep these two hurdles in mind and to look for the teachable moment, when an appropriately chosen story will have the most desirous impact. Importantly, these stories should not contain morals or provide answers; rather they should leave room for discussion.

Stories can be very beneficial when used as a means of learning from one's own and other people's, including the educator's, errors. They promote an environment conducive to learning, where errors are acceptable as long as they are recognised and learned from.

In the field of psychiatry, Wood (2004) has made a careful study of the case narrative, drawing on the casebook guide to the Diagnostic and Statistical Manual of Mental Disorders. Whilst the manual itself list the symptoms characteristic of each diagnostic category, the casebook provides narrative examples and discussions designed to help the clinician interpret their observations and make correct diagnoses. It is accepted that these case narratives are edited so that only those parts of the patient's story that offer clear pointers to diagnoses remain. Wood is more interested in the discovery that even within the edited version, there are two distinct narrative modes: one leading to diagnosis, the other, when attended to, interrupting that process. This reminds us that even the edited

story is, in the final analysis, irreducible: it will always remain threaded, layered and multiply interpretable.

1.2.2 - Qualitative health research

The difficulty with qualitative health research is deciding appropriate ways of identifying, collecting and representing data that, although clinical, has social, cultural and personal aspects too. Some researchers have found postmodern ideas to be particularly helpful in this regard. At the heart of postmodernism within the social sciences is the belief that objective scientific methods are inappropriate because they disallow the voices both of the researcher and the subjects of their research. For the postmodernist, far from complicating the picture, these voices are what complete it. It follows, therefore, that postmodern forms of enquiry would permit multiple, even conflicting truths, rather than the single truth that objective scientific forms of enquiry seek to obtain. Abma (2002) examines and discusses some of the structural and stylistic devices that health care researchers and writers have used to represent and disseminate their research findings. The results are often polyvocal, evocative reports that are quite different from convention, but which are regarded as peculiarly adaptive to the domain. In terms of accessibility, visualisation, conciseness and so on, these artistic devices can be just as effective as the routinely used graph.

1.2.3 - Professional practice

If stories are used in medical education then it is to be expected that this use continues in the practice of medicine. Again, there are various kinds, one of which is the anecdote. Hunter (1986) is careful to point out the pitfalls. The advantage of the anecdote is that it always records the unexpected and/or the unusual. The textbook entry, on the other hand, records a generalised rendering of the typical case, and even if a differential diagnosis is provided, that too is a generalised rendering of the alternative malady. Functionally, the textbook provides scenarios for what is probable and the anecdote serves to remind of the possible. The overriding message is that a textbook description can, and mostly does, fit the description of a particular instance but the anecdote, because it tells of an actual happening, can not and should not be generalised. An experienced clinician will collect anecdotes but will use them cautiously.

"Medicine" says Hunter (1991) "is fundamentally narrative". By beginning each chapter with a quote from one or other Sherlock Holmes novels she is able to draw two analogies: medicine as narrative and medicine as interpretive. An example of the latter is where the patient's account and the clinician's own observations must be fitted around the theory and the general rule rather than there being any definite mapping of one to the other. Examples of the former are many, and we have already looked at the anecdote. In the context of a presentation there are also opportunities. It begins with the patient's account: their illness narrative; through a process of interpretation, the clinician produces a medical version. Then, if the doctor-patient encounter is a fully inclusive one, there

will be a co-authoring that both parties can work with and which provides the basis for a management plan, itself mutually agreed.

It is the reflective mode of writing, rather than the narrative form that reflection may take, that Bolton (2001) is chiefly concerned with. Her book is a guide to developing the skills of a reflective practitioner by, in the first case, putting pen to paper in a reflective way. Narrative, integral to individual and social behaviour is also therefore, the obvious choice for reflective writing. Reflective writing is something that can ultimately only be learned by practice, not by reading the reflections of others. It requires an ability to view a particular experience through different lenses, each one serving to make what was ordinary, extraordinary. The strangeness that the practitioner is thus faced with poses a different set of questions for the practitioner to answer. She provides examples from students, practitioners and tutors, not only of medicine but of other professions within the social care arena.

Through contributing texts to their publication, Greenhaugh and Hurwitz (1998) present a variety of opportunities for narrative in medicine, including the value of literature more generally both in clinical practice and in medical education. They then address a commonly held belief that narrative-based and evidence-based are opposing and mutually exclusive paradigms. Rather they see the two as not only complementary but dependent to some degree; that is, reliable medical evidence is reliable precisely because it has been examined with an interpretative eye.

1.2.4 - Personal-professional development

Narrative medicine appeals to the idea that the practice of medicine is just as much an art, as indeed it was regarded historically, as a science. Trautman (1981), before the term was coined, reports on a prolonged series of group discussions that sought to explore a link between two art forms, the link being a healing one: the healing *art* of medicine and the healing *power* of literature. Ultimately, the purpose of that study was to discover how literature can contribute to the education of the physician. But the link is two-way: good medical practice is positively influenced by the literary arts even as medicine can and does provide the material for it. The intertwining is evident in all the following educational opportunity scenarios: learning how to comprehend and interpret the patient's history, itself a narrative; learning about empathy through the evocative nature of literature; learning about enriched verbal communication through the artful language of literature; gaining awareness of physicians' lives in the round through their own poetry and prose or from those in which they feature; appreciating the medicinal value of literature for patients, physicians and writers alike.

Conscious of narrative's re-emergence, indeed persistence, in medicine, Borkan et al. (1999) focus on the stories primary care physicians tell about patient encounters which, whether ordinary or extraordinary, somehow changed not only the way they practice medicine afterwards but also perhaps, aspects of their personal lives. What is different about these stories is that they are not confined to western cultures and traditions but are told by practitioners from around the world. What is similar about them is that the patient is always portrayed as a bio-psycho-social being. This model which regards the

patient in a non-compartmentalised way, needs a form of expression which narrative provides. Therefore, although mainly addressing the medical practitioner, they expect this collection to be of interest to the sociologist, anthropologist and behavioural scientist. The types of story range from the heroic through the comical to dealing with illness in practitioners' own families. Each story type has its own dedicated chapter, introduced by a reflective unifying narrative which also makes the material more accessible to medical educators and students.

1.2.5 - Patient contexts

Whereas the subject of practitioner narratives is disease manifestation, that of patient narratives is illness; the two are quite different. The illness narrative is part of a continuum. It forms an episode in a person's life story, following on from before illness struck and continuing with life as it became after. The illness may be a turning point, especially if the condition is chronic, marking where the life story changed course.

Like most narratives, an illness narrative may have several audience dependent versions. There is the version that the patient will offer when they are seeking medical advice, which may be quite different to those they relate to a family member, friend, acquaintance or stranger.

The problem with the traditional case history, according to Aronson (2000) is that it stifles expression; as a description of a particular disease manifestation it takes no

account of what the patient is thinking or feeling. The autopathology on the other hand, is the patient's tale and this has a quite different audience: the general public. Aronson has watched the rise in popularity of such publications and has established that they are mostly about serious, dramatic or fashionable conditions, and almost all contain some form of denial. Apart from cathartic reasons, they write for people similarly afflicted and also to advise and criticise carers. Fabricated they may be, but still it is suggested that patients' tales can also educate medical practitioners.

Bury (2001) remarks on the proliferation of such book length published personal narratives, putting this down to morbidity pattern changes, increased information and public debate about medicine. These narratives are found to take one of three forms: *contingent* narratives are about perceived proximate causes and effects of their illness; *moral* narratives are about changes to their personal and social identities, and *core* narratives are about their illness and suffering in terms of cultural belief.

Other forums for patient storytelling are self help and support groups, group education and therapy, where it is found by Bülow (2004) to be a mutual activity. Bülow's analysis has identified three distinct story structures. The first of these is the self-contained and personal; this is where individuals tell of their own experience of, in this case, chronic fatigue syndrome. The second is where a facilitator orchestrates a chain of such stories. The third is a co-narrated single story, where individuals each might elaborate on certain aspects of an otherwise shared experience. One of the benefits of joint telling is that the patients are thus able to build a collective image of the illness with which individuals can

compare their own personal experience. Even if patients' experiences of the clinical condition differ one from another in detail, they can agree on the general suffering. The effects of sharing are firstly that the personal experience is transformed into a collectivised one which the individual can make sense of, and secondly, that the individual gains a new perspective on what was previously, private suffering.

Frank (1995) is concerned with the patient's view of themselves and their illness. Telling their story allows the individual to gain some control over their predicament rather than continuing in the role of passive victim and receiver of care. Beyond the individual, moreover, the story becomes an experience shared by similarly suffering storytellers. The therapeutic nature of stories turns the once victim into a giver of care. Storytelling does not come easily to those whose voices are silenced by their suffering and by the treatment they are receiving, but it is by listening to the stories of empathic others that they can begin to reclaim them. This work is largely theoretical: Frank is himself the wounded storyteller of his own suffering but he is also a collector of stories. Just as there are different experiences of illness, there are various kinds of story in the collection: restitution, chaos and quest. The restitution story has traditional plot structure: healthy, sick, healthy; the chaos story does not, for instance it may tell of a chronic condition that does not fit this pattern; the quest story has the teller taking control and overcoming the chaos. It is expected that the wider audience that publication provides will develop the theory as readers respond with stories and story types of their own.

Rimmon-Kenan (2002) recounts how a researcher becomes subject of that research when forced to consider the reshaping effect illness has on one's own narrative identity. The story is told indirectly, using the first-person narratives of others in similar situations to explore how continuity is disrupted and how that disruption is bridged. Indeed, the question arises whether the term 'narrative' is still applicable when the disruption is so great that the ill person has difficulty recognising themselves in their new found state. This is an interesting question regarding story structure, and not one generally asked by researchers in the applied domain. We shall, however, look in some detail at story structure in our review of the relevant literature in Chapter 2.

This move to share illness narratives means that patients are becoming more knowledgeable about health matters, but is this really the case or is it more a bombardment of misinformation? This is what concerns Herxheimer et al. (2000). Their solution, which we discuss in chapter 3, is a database of selected patient experiences of illness with links to researched evidence and other resources on the worldwide web. Although designed with the general public in mind, the system as a whole is expected to address the needs of all those involved in patient-centred healthcare.

1.2.6 – Situating the thesis

Our brief review of the literature shows health care to be a prime example of a complex socio-technical domain on the one hand and one that offers a lot of scope for narrative, and supporting technologies on the other. We maintain, however, that it is not the only

potential contender. Indeed, any domain where there is a strong social and/or psychological element would be worthy of our attentions. It is important that this is borne in mind as we develop our thesis: that while knowledge sharing in healthcare will be our focus, it is just one of perhaps several choices that we could make. There are many other domains where narrative and sense-making go hand in hand; it follows, therefore, that there are many domains where we might look for narrative support tools and where we might contribute to narrative technologies research. By focussing on health care generally rather than on a specific area of health care, and by focussing on narrative exchange rather than the domain of that exchange our research contributions should in principle apply to areas outside of medicine entirely.

1.3 - Thesis problem

Given the new found worth of narrative within medicine just reviewed, and given the capability of today's information and communications technologies, we might expect a plethora of supporting technologies to have emerged, but as we shall see, there is currently evidence of very little besides the general purpose online discussion forum. However, before we begin to ask why this might be so, in order to be in a position to identify and talk about stories, we must establish what separates the story from discourse of other kinds. Our first research question, therefore, and one which we answer in Chapter 2, is:

What makes stories distinctive from other forms of discourse?

Once accomplished, our next question is:

Do healthcare professionals use the popular and available online discussion forums to share stories?

This question is addressed in Study 1 which we describe in Chapter 4; if we find no evidence here it will indicate that the story is not as pervasive as is often argued or that this popular medium is a wholly unsuitable carrier. In any case it might explain why there is little dedicated support for story exchange on the web. If on the other hand we find such evidence, we will readily accept the argument and can contribute our findings to it.

Only having found the evidence can we frame our next research question:

How can we conceive purpose-built story technology for health care professionals?

This is refined into four sub-questions, elaborated in Chapters 3, 5 and 6:

> ***How has narrative technology been conceived to date?*** (Chapter 3)

> ***What are the requirements for a story annotation scheme?*** (Chapter 5)

> ***How can story annotation capability be delivered in a software tool?*** (Chapter 6)

Chapters 7-9 then consider the answers that can be concluded from analysing a prototype story sharing and annotation system for healthcare professionals:

> ***How do untrained users use the story annotation tool?*** (Chapters 7-9)

1.4 - Chapter organisation

The thesis is organised as follows. There are two consecutive literature review chapters. The first being historical provides a number of theories as to what constitutes story. Rather than tackle them all, it is decided to look at the influence of structuralism. There are three reasons for doing so. Firstly, they are the best known models, providing modern replication of the Aristotelian ideal. Secondly, as physical feature models they enable fairly rigorous goodness of fit judgments to be made. This will inform a later stage of enquiry which attempts to identify stories within general discourse. Thirdly, knowing the advantages and disadvantages of the various models will help inform the choice of a suitable generic structure that will accommodate any story that we do identify..

The second literature review surveys the contemporary literature regarding the implementation of researched theories whether or not they are implemented in technology. There are a number of potential avenues, but the ones explored in this chapter are those that are at least compatible with, and are informing, our own model. Pertinent to the current enquiry are ontologically inspired classification systems, suggestions for domain specific story templates, story markup languages, and some of the research carried out by the narrative intelligence movement.

Chapter 4 describes Study 1 in which the online discourse of medical practitioners was analysed for the presence of stories, sourced from the postings to an online discussion forum. A story was identified according to whether it met certain criteria, distilled from

the literature review in Chapter 2. It was found that although a fairly high proportion of postings contained stories, a higher proportion contained potential stories, that is, postings that just failed to meet the criteria. The first reason for conducting this test was to provide evidence that medical professionals do in fact communicate online and in public – relevant for a web storybase, and therefore it had to be sufficiently strict to ensure that positive judgements would be unequivocal. Having obtained the evidence, the second reason was to select stories from each of three areas of discussion also identified: *social*, *technological* and *professional*, and use these stories as data in Study 2.

During the extraction and classification process of Study 1, the concept of the potential resource value of a collection of experiential stories is developed. It is recognised that the story in printed form, separated from its discourse surround, will inevitably be multiply interpretable but that this might be regarded, not as a hazard but as an opportunity for semantic markup. The annotation model described in Chapter 5 is structurally flexible, the only rule being that the storyteller will be able to provide a main point for its telling, which will also serve as the story's title. Other optional attributes are multi-value, multi-aspect or both. In addition, readers of stories can choose to annotate them, including suggesting an alternative title. For tellers and readers alike, selection lists on certain attributes offer literary and medical speciality terms designed to assist the annotation process.

Although narratology has been influential, pragmatic and affect theories have been more influential and this has allowed aspects having to do with the story's telling and reception

to be seamlessly included. There are two reasons for this: one is the argument that the meaning of the story is not derivable from the text alone and the other is that such attributes will allow stories to cluster in resourceful ways.

Chapter 6 describes a dual study and a specifically designed user interface which presents users with an experimental task in four consecutive phases: index, read, relate and re-index. A prototype storybase is implemented which contains twelve stories representative of the entire collection identified in Study 1 and retains the relative contributions to the three discourse areas identified: *social*, *technological* and *professional*.

Chapters 7, 8 and 9 discuss the progress of Study 2 in which 24 participants volunteered,each performing the task separately and in the company of a mediator. Volunteer's voices and screen movements are recorded as they carry out the task, and on completion they are asked to fill in a simple questionnaire. In the first session 16 knowledge media researchers annotate designated subsets of the stories and are guided in doing so by the provision of the attribute value selection lists and the suggestions an editor made regarding just the indexical attributes. The second session is the same except that the volunteers this time are eight medical professionals, and in addition to the editor's suggestions they can if they wish, view additional suggestions made during the first session but again, only on the indexical attributes.

Chapters 7, 8 and 9 are concerned with presenting and analysing the data from the dual study. There are broadly three data sources.

1. The story points and other attribute values that the volunteers suggested and the questionnaire responses comprise the first quantitative source.

2. The second, regarded semi-quantitatively, is the within-screen and between-screens navigational and operational data.

3. Finally, Grounded Theory (Glaser and Strauss, 1967), is chosen for clustering and analysing the more qualitative data provided by volunteers' task behaviours.

The data in Chapter 7 is analysed entirely independently of any recorded data, providing an analysis of the questionnaire responses. These responses subsequently provide a context for interpreting data analysis categories and data, in the remainder of the chapter, and in Chapters 8 and 9. A striking result is the quality of participants' annotations, and their engagement with the stories.

Chapter 8 begins to look at the recordings data, and in particular, at those parts that can be discussed in quantitative terms. Because the task involves the annotator physically interacting with user interface elements that represent choices they may make, much of this data can be represented diagrammatically, and in ways that allow both individual and collective behaviour patterns to be combined in the same diagram. Also, both the stories and the attributes are ranked according to a complexity function based on the number of explicit and prolonged referrals to the story text.

Chapter 9 completes our analysis, with a more qualitative account of user behaviour based on the screen recordings data. This is approached according to the principles of Grounded Theory (Glaser and Strauss, 1967): rather than approaching the recordings data with hypotheses of what categories will be found there, by repeatedly viewing the collection, categories both expected and unexpected are allowed to be emergent. These it is found, fall into four areas of interaction: *annotation*, *story*, *task* and *user interface*. User interface findings although very informative are not central to the thesis and so are contained, together with other data from Studies 1 and 2, in the associated technical report[1].

Chapter 10 concludes with discussion of what was learned, the implications for story base technologies and considers potential future research in these areas. There is also some discussion on the design of studies such as this, and the influence that user interface design has on both qualitative and quantitative data.

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[1] Multi-Perspective Annotation of Digital Stories for Professional Knowledge Sharing within Health Care: Appendices. Technical Report KMI-07-04, Knowledge Media Institute, The Open University, UK. Available at: http://kmi.open.ac.uk/publications/techreport/kmi-07-04

Chapter 2

"From Aristotle to Gabriel: Anatomical Story Models"

2.1 - Introduction

This chapter concerns the question of what makes stories distinctive from other forms of discourse. To find answers to this question we explore, more or less chronologically, past and contemporary models. In the first place this provides us with a vocabulary just in order to discuss this most familiar form of human communication. Some of the terminological ambiguity we discover has to do with the story's dual function: referring to both the message and the medium, whilst another has to do with the naming of certain structural components. In order to confine the search, we tend to concentrate on originating theories but which are described in concrete structural terms, rather than more abstract or applied models. Thus we are able to identify three broad research domains: literature, culture and cognition, each of which can be subdivided into three phases of development. Starting with the Aristotelian argument that the story to be appreciated as such, must meet certain structural criteria we follow an almost inevitable path from what we call the grammatical models to a period when the story was regarded as having a structure that could be paralleled to the linguistic structure of the sentence and, moreover, could be generated from a similar rule set. A powerful counter argument was that perfect syntax does not guarantee a story product and that matters of discourse are just as important to consider. Beyond the story grammars, there is a very active period and a diversity of theories but one thing most of them have in common is that the plot, no longer regarded as paramount, gives way to such things as narrator motive and audience response. We will use these more sophisticated models to identify and lift out stories from general online discourse as will be described in

Chapter 4. In addition they will inform our design and development of markup schemas for online storybases which we begin to discuss in Chapter 5.

In recent years there has been resurgence of interest in the both the medium and message of the story. The purpose of this chapter is to provide a practical guide for story technologists. The discussion is confined to structural theories and models because it is assumed that the main concerns for the story technologist are: story generation, annotation and organisation. At the very least, it is hoped that it will give the reader a basic introduction to the still emerging discipline of narratology.

In order to build tools for supporting storytellers and their audiences, it is first necessary to establish what the story is. Necessary for human social development (Hardy, 1977; Preece, 1987; Miller & Sperry, 1988; Nelson 1989, 1993; Engel, 1996; Jervay-Pendergrass & Brown, 1999; Bruner, 1991, 2002) and perhaps for other social species (Read & Miller, 1995; Dautenhahn, 1999, 2001, 2002, 2003), it is hardly surprising that it is the subject of research in several academic areas. Rather than attempting to discuss each and every theory, we will map out the territory in the form of a diagram, taking as end points, two landmark theories: Aristotle's *Poetics* [circa 350BC] and the complementary models of Gabriel [2000]. One reason for awarding these two landmark status is that they offer insights as to why structural models are terminologically ambiguous and also highlight the differing opinions as to what separates story from non-story. Examples will be drawn from the diagram if they are considered particularly pertinent to our task, namely, and in this order: the identification, abstraction and annotation of stories.

The organisation of the chapter is as follows. First to be presented is the map of story models. Two of these: historic and current, and highlighted in the table will be discussed in turn. Returning to the map, we will select from it in the general order of progression, other intervening influential models.

2.2 - Map of story models

From Aristotle to the present day there have been numerous theories of narrative. Some of them are brought together in Table 2.1 below. Much, of the work, and in particular, that referenced in the upper part of the table is now situated within Narratalogy, a vast yet still emerging discipline that is concerned with narrative in every aspect and of all kinds. Born out of French Structuralism and Russian Formalism, its founding principle is that narrative and narration are separable. Once separated moreover, narrative is observed as having certain structural regularities, and therefore offers itself for modelling. The table follows the evolution of these ideas from the earliest grammatical theories through the formalised grammar theories and on to more recent theories which at least to some degree reunite narrative and narration. There are three columns for three broad research areas although there will inevitably be overlap, also with areas of applied research, not shown in this table because we are more concerned with founding principles. The table is a minimalist in the sense that development time from an initial idea may be long, and there may also be, merging of ideas from earlier models. The attempt has been to take for an entry in the table, the first clear account, and only if the work of an author or group has changed significantly will they reappear in the table although these other works may be discussed subsequently. Where an original work provides the source for a later

publication, as in the case of a PhD thesis or a translation, its date is shown in square

brackets alongside the respective author.

Table 2.1

Categorised Story Models within Story Research Domain

	LITERARY	**CULTURAL**	**COGNITIVE**
Grammatical Models			
Schema	*Aristotle [350BC]* Freytag [1863] Propp [1928] Greimas [1966] Bremond [1966] Barthes [1966] Todorov [1968] Greimas 1971	Levi-Strauss [1958] Dundes [1963] Labov & Waletzky 1966	Bartlett 1932
Grammar Models			
Phrase-structure			Rumelhart 1975 Thorndyke [1975] Mandler & Johnson 1977 Stein & Glenn 1979 Shen 1989
Transformational	Prince 1973 Ryan 1979 Pavel 1985	van Dijk 1972 Colby 1973	Johnson & Mandler 1980
Beyond Grammar Models			
Network			Black & Bower 1980 Trabasso Secco & van den Broek 1984
Feature	Forster, 1927		Stein 1982 Zwaan et al. 1995
Plot, Gist and Macrostructure	Brooks, 1984	van Dijk 1975	Kintsch 1977 Lehnert 1981/2 Schank 1990
Dual	Chatman 1975, 1978		
Points	Prince 1983 Vipond & Hunt 1984 Rigney 1992	Labov 1972 Polanyi 1979	Wilensky 1982/3 Dorfman & Brewer 1994/2004
Affect	Miall 1989	*Gabriel 2000*	Brewer & Lichtenstein 1982
Reader	Barthes [1970]		

2.3 - Selected story models

The obvious place to start is with Aristotle for what he had to say on the matter in his *Poetics* (Butcher [1895]; Hammond, 2001; Potts, 1968) continues to influence literary research in at least four ways. It was the earliest attempt to distinguish literary kinds by means of their structure. Secondly, it gave what Aristotle believed to be the necessary conditions for what might, for want of a better word, be called 'storyness'. By that is meant the special qualities that turn what most people would regard as non-story into something that most people would instinctively recognise as a story. The third reason concerns its discussion on language: the analogy drawn between the statement as the basic syntactical and semantic unit, and the story, and the merits of metaphor in the contexts of narrative and dramatic performance. Finally, in comparing history unfavourably with poetry, Aristotle's reference to 'fiction' (Potts, 1968), it argued that the latter revealed universal truths while history only revealed particular ones; also the chronological structure of history makes it unsuited to fiction.

2.3.1 - Aristotle

The defining characteristic of a poetic work was according to Aristotle, imitation, but there were three ways in which the various forms of the day differed:

(1) **objects** of imitation: character, emotion, action

(2) **medium** of imitation: rhythm, harmony, language

(3) **manner** of imitation: first-person narration, dramatic dialogue, character acting
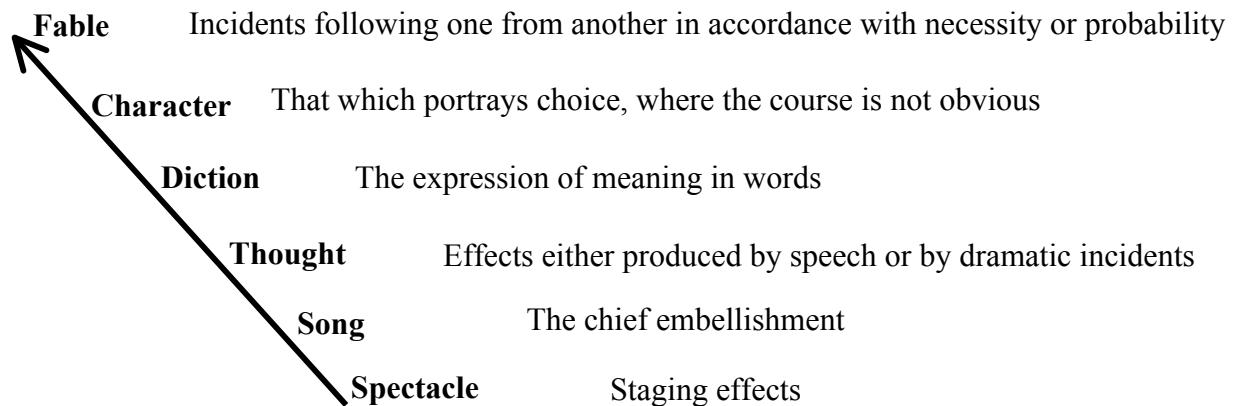
The narrative forms of poetry that Aristotle discusses are tragedy, comedy and epic. Tragedy and comedy are different kinds, having evolved from two narrative forms: these were epic and lampoon respectively. The principle difference between tragedy and comedy on the one hand and epic poetry on the other is that the first were particularly suited to dramatic production whereas the latter, due to its length and multiplicity of plot, was not. That said, Aristotle was quite clear on the matter that a well constructed tragedy should succeed even when read from the page. The tragedy was considered by Aristotle to be superior for the reason that all the elements of the epic were to be found there, and more. Technically, therefore, an epic could be remade as several tragedies, one for each plot line.

The principle difference between comedy and tragedy is in respect of the objects of imitation; the first in depicting men as worse than they are, generates laughter but the second in depicting men as better than they are, evokes pity and fear. In other words the audience will identify with the latter but not the former, for "…pity is aroused by unmerited misfortune, fear by misfortune of a man like ourselves" (Butcher [1895]).

Aristotle described tragedy as imitation of an action that is serious, complete, and of a length that can easily be embraced by the memory. Its six elements are listed in order of necessity in Figure 2.1.

Figure 2.1

Aristotle's elements of tragedy, arranged in order of necessity

Fable   Incidents following one from another in accordance with necessity or probability

Character   That which portrays choice, where the course is not obvious

Diction   The expression of meaning in words

Thought   Effects either produced by speech or by dramatic incidents

Song   The chief embellishment

Spectacle   Staging effects

These six combine to an all important unity and that makes it difficult to understand the sense in which he used the term fable: whether referring to that oneness or its most important element. For Aristotle could conceive of tragedy without character and was very dismissive of the importance of spectacle. Of the six, three (plot, character and thought) comprise the objects of imitation, one (diction) the manner if imitation and two (song and spectacle) the medium of imitation. Epic poetry contains the first four elements but the medium differs.

As the most important component of tragedy, the fable (plot) always comes in two parts, separated by a turning point. The turning point is a change of fortune either from bad to good or from good to bad. There are two kinds of plot: simple and complex. The complex plot is the superior of the two as it involves disclosure, irony of events, i.e. reversal of the situation (peripeteia), or both. A simple plot involves neither.

Disclosure refers to a change from ignorance to knowledge through recognition, of which there can be five kinds, listed in Figure 2.2, in order of sophistication.

Figure 2.2

Aristotle's means of recognition, listed in order of increasing sophistication

Sign	Physical mark, token or object	*Least*
Invention	Addition of extraneous detail for the purposes of effecting recognition	
Memory	Reawakening feeling, e.g. on hearing or seeing something	
Reasoning	Inference	
Incidents	Integral to plot	*Most*

Every tragedy then consists of a single, preferably complex, plot consisting of two parts: complication and unravelling (denouement). The complication includes all those actions up to but not including the turning point, and the unravelling includes everything from the beginning of the turning point. Everything outside the plot is regarded as inessential episode.

Like the epic, the tragedy can in addition be either pathetic (motivated by passion) or ethical (motivated by ethics). In judging whether two tragedies are the same, Aristotle advised that one should look to the plot. If they are identical in their respective complications and denouements, then the two can be called the same.

Even in current applied story research there is still a great deal of ambiguity if not uncertainty surrounding fundamental terms such as *story*, *narrative* and *plot*. People

tend to confuse *plot* and *story*; they also tend to confuse *story* and *narrative*. One reason for the first confusion is that *fabula* is the Latin for *story* and it is also a translation for the Greek *mythos* which has been interpreted by many translators of *Poetics* as *plot*, but which has also been translated as *fable* (Potts, 1968):

"For him [Aristotle, in contrast to Plato], the myths were a truthful revelation of the importance of human actions." (Potts, 1968)

Even given that Aristotle was referring to works of a particular kind, there can be little doubt that he used the word in two senses, i.e. to refer to the whole, and a part. This is because he talked in terms of differentiation among works and identity between their corresponding parts, i.e. the purpose and process of abstraction.

Turning now to the second confusion, perhaps too because it comes from the Latin for telling (narratus) a story, *narrative* is on the one hand regarded as the discourse, i.e. the delivered text, be it oral or written (Genette, [1972, 1983]), although it is also just as frequently used synonymously with story (Barthes, [1966]). Other researchers make a distinction between these two; Ryan (1979) for example requires the story to have closure whereas the narrative does not.

Narratological definitions of these terms (e.g. Bal 1997, Prince 2003) suggests a layered model with plot providing the forward dynamic, story providing the setting, characters and a logical arrangement of events, and narrative providing the stance of the teller where the teller is distinct from the author.

Because we are chiefly concerned with modelling issues, it helps us to think in terms of properties and dependencies. We therefore borrow from Gabriel (2000), whose model of the story is next described, and regard plot as necessary for story and story as a strict subset of narrative. Gabriel's model is convenient; our borrowing from it should not be taken as a rejection of other theories. Forster (1927) for example, whose focus of enquiry is the novel, has argued just as convincingly that it is quite possible for there to be stories, and good ones at that, without plot. From this angle of the viewing lens, the story is a narration of chronologically linked events that succeeds in arousing curiosity in the audience who will question 'what next?' The difference that plot makes is that cause and effect event pairs at best only implicit in the story, become explicit:

' *"The king died, and then the queen died,"* is a story.

"The king died, and then the queen died of grief" is a plot.'

E. M. Forster, Aspects of the Novel, 1927.

In Gabriel's property and dependency model a story requires a number of elements. Plot on its own does not guarantee a story but a story would be incomplete without one. Narrative then can be thought of as an encompassing potential; with a little work, any narrative can be made into a story. Ultimately however, story appreciation depends on narration, matters of how and why it is being told, who by, and to whom. It is at this discourse level that the story is at once concretised and multiplied.

2.3.2 - Gabriel
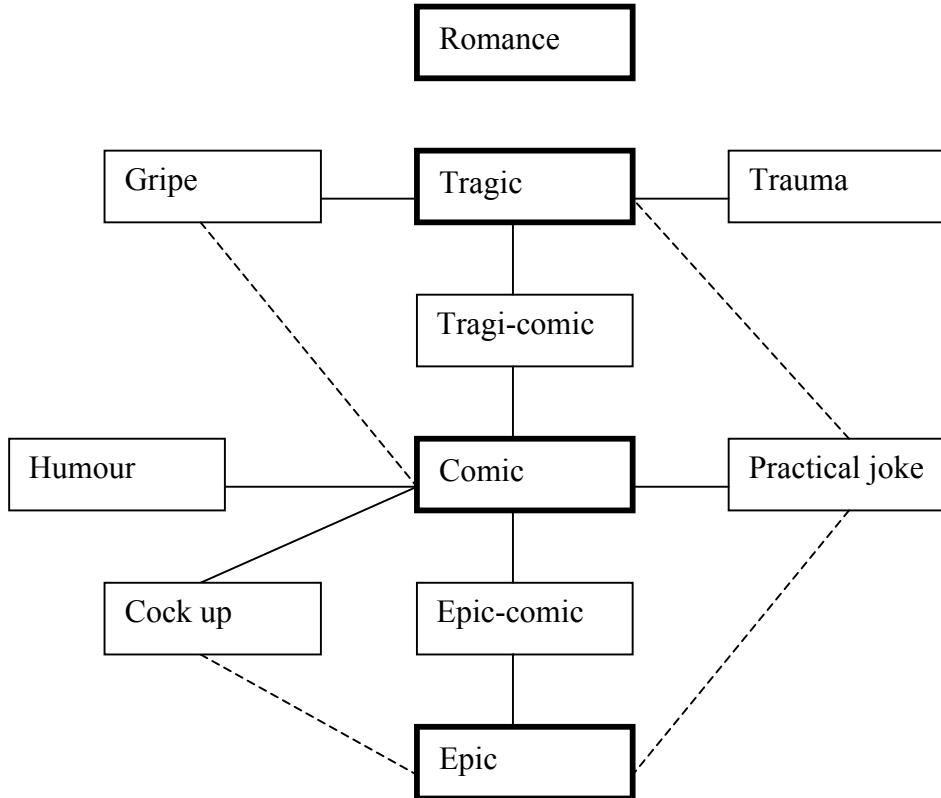
Because Gabriel was specifically researching storytelling within organisations, the analysis of the stories he collected suggested a particular typology and a focus on particular qualities. His chief concern was to differentiate stories from narrative more broadly, and then to differentiate stories from more report like 'protostories', those that were somehow lacking.

 "Stories are narratives with *plots* and *characters*, generating *emotion* in narrator and audience, through a poetic elaboration of *symbolic* material. This material may be a product of fantasy or experience, including an experience of earlier narratives. Story plots entail conflicts, predicaments, trials, coincidences, and crises that call for choices, decisions, *actions*, and interactions, whose actual outcomes are often at odds with the characters' intentions and purposes." (Italics added)

Figure 2.3 below is a diagrammatic representation of Gabriel's basic (bold) and hybrid story types and their inheritance relationships.

Figure 2.3

Representation of story types and their inheritance relations, taken from Gabriel, 2000
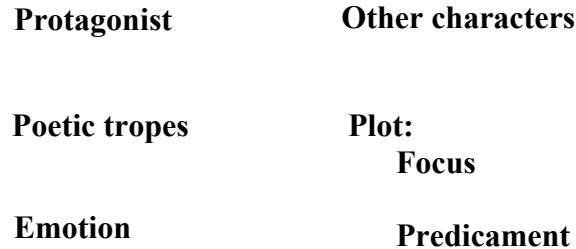
The romantic classification is for those stories that involve the protagonists in acts of generosity, feelings of gratitude, nostalgia etc. The dashed lines show potential connections between story types, e.g. a practical joke is always comic but may also have elements of the epic and the tragic story. Gabriel was able to arrive at this model by observing that there are certain points of potential variance among stories. For Aristotle, the epic and the tragic were only structurally different but for Gabriel they are also different with regard to their characters and themes. Briefly, both tragedy and comedy cast the protagonist as undeserving and deserving (passive) victim of events respectively. The epic casts the protagonist as a hero (agent) of

events. The variables suggested by Gabriel that taken together, establish a story's type are shown in Figure 2.4 below.

Figure 2.4

The variable dimensions of the story, taken from Gabriel, 2000

Protagonist	**Other characters**
Poetic tropes	**Plot:**
	Focus
Emotion	**Predicament**

Of these, the only one that needs to be explained is *poetic tropes*. These are analogous to the rhetorical tropes within dialogue, i.e. the attributes by which storyteller and audience interpret a story. Gabriel describes eight positive and four negative ones which in Figure 2.5 are indicated by italics.

Figure 2.5

The poetic tropes, taken from Gabriel, 2000

Motive
 Provides an explanation for character behaviours and actions

Causal links
 Allows the occurrence of one event to bring about a subsequent event

Responsibility (credit and blame)
 Distinguishes villain from hero, right from wrong

Unity
 Allows that a group of individuals can be regarded as undifferentiated

Fixed qualities
 Characters acting predictably and in accordance with stereotype

Emotion
 Distinguishes between characters' emotions and those generated by the story

Agency
 Attributing intentionality to inanimate as well as animate entities

Providential significance
 Allows incidents to occur outside the control of characters

Motive denied

Unity denied

Emotion denied

Agency denied

Table 2.2 below is a representation of Gabriel's attribution of poetic trope to story type. The first thing to notice is that some poetic tropes are shared among the types more than others (horizontal totals). Also notice that hybrid types have relatively fewer (vertical totals). In fact Gabriel has said that to overly mix story types negatively effects audience understanding. For Aristotle, as we saw earlier, unity referred to completeness and wholeness but Gabriel is using it in the sense of unity among people, especially with regard to oppositional situations. Attribution of causal connection has not been included in the diagram, probably for the reason that it is

common to all story types. Other omissions are the denial of motive ("it was an accident") and unity ("not one of them").

Table 2.2

Representation of Poetic tropes by story type taken from Gabriel, 20000

Poetic Trope	Comic	Tragic	Epic	Romantic	Tragi-comic	Epic-comic	Cock-up	Humour	
Agency	√ (before misfortune)		√			√	√		4
Agency denied	√ (during misfortune)								1
Blame		√							1
Credit			√	√ (worthy love object)		√	√		4
Emotion			√ (loving, caring)						1
Emotion denied								√	1
Fixed qualities	√ (pomposity, arrogance, vanity, etc.)	√ (victim: noble, decent, etc. villain: evil, devious etc.)	√ (nobility, courage, loyalty, selflessness, honour, ambition)	√ (gratitude, caring, loving, vulnerable, pathetic)	√ (fortitude, moral courage, defiance, wit)	√ (sense of humour, irony, imagination, bravado)	√ (wit, imagination, cunning, speed, common sense)	√ (grace, sense of humour, self-possession, fortitude)	8
Malevolent fate		√							1
Motive		√ (to the villain)	√	√		√			4
Providential significance	√				√				2
Unity	√	√							2
	5	5	5	3	2	4	3	2	

We have found Gabriel's definition of story to be very useful in our identification and classification of stories within online discussion, even given that his interest in stories is specifically to gain a better understanding of how organisations operate. To a degree at least, this will have influenced his chosen criteria for storyness. For example, disallowing factual or overly opinionated narratives, for from them, the researcher of organisations learns little.

2.4 - Expanding the table

Returning to the map (Table 2.1, Section 2.2), it is possible to trace the progression of story models from Aristotle through to Gabriel, though not necessarily chronologically. The labelling of the horizontal divisions needs explaining. In the first division are collected together the schema models. Although some researchers refer to these models as grammars, we shall restrict that term to formalised grammars with explicit rewrite rules which comprise the second division. A schema on the other hand is any formal or semi-formal specification of the components of story, serially ordered. In other words, the grammar generates the schema. Moving downward through the table it may be argued that certain later models also fit the criteria for schema membership, but here they appear just once, and always as exemplar of the more recent theories.

It is common in story research to differentiate only feature models and affect models but this produces categories that are too large to be useful. For us, the criterion for affect models is the relative emphasis on emotion contained or evoked. In the case of an evocative model, there is less concern with the story per se and more concern with the narrating, listening and reading experience. This is why in the third division, the affects models are flanked by points and reader models; they too have this same concern. Generally speaking, the lower down the table, the greater is the emphasis on the discourse level of narrative.

Definitive separation of the various areas is difficult but most noticeable in the literature is the tremendous influence Structuralism has had, even outside literary theory, in particular the view of the story as conforming to certain rules. Whereas

Formalism separates structure from content, almost disregarding the latter, Structuralism has these two as mutually reaffirming one another. However, Structuralism has its roots in Formalism, and this is most evident in the work of Propp [1928]. Post-structuralism in its turn came out of Structuralism, the turn being that structure and content do not account for a text's meaning. These labels aren't used in Table 2.1 because that would exclude Aristotle who articulated the necessary conditions for story grammars. To organise discussion therefore, the three divisions represent three broad periods: the grammatical, the grammar and beyond the grammar. The models of these three periods are described in Sections 2.5, 2.6 and 2.7 below respectively.

2.5 - The Grammatical Models

The development of story grammars long preceded the advent of Structuralism, and to show this more clearly the pioneering models that will be discussed in this section have been separated from those directly inspired by linguistic theory, in particular, Chomsky's context-free and transformational grammars, i.e. those expressed in terms of explicit rewrite and transformation rules. These later models will be discussed in Section 2.6. How might this first division be ordered? Most noticeable about these early models is their relative level of abstraction. In that they are all grammatical, they are all syntagmatic structures, whether relatively deep or surface. The syntagm describes a horizontal plane of narrative at any given depth of analysis. However, some models also include a vertical plane, the structure is paradigmatic in addition; such models enable perspective and choice, difference and opposition.

A syntagmatic model is syntactic; the concern is the granularity of the constituent units of narrative and their sequencing. A paradigmatic model is semantic; it concerns the instantiation of those units that are variable. To aid discussion, Table 2.3 below reproduces the relevant top section of Table 2.1 above.

Table 2.3

Schema Models within Story Research Domain

Schema Models		
LITERARY	**CULTURAL**	**COGNITIVE**
Aristotle [350BC] Freytag [1863] Propp [1928] Greimas [1966] Bremond [1966] Barthes [1966] Todorov [1968] Greimas 1971	Levi-Strauss [1958] Dundes [1963] Labov & Waletzky 1966	Bartlett 1932

2.5.1 - Syntagmatic models

On the basis that he gave meticulous definitions of 'beginning', 'middle', and 'end', and also because his plot had a definitive structure and direction, Aristotle's model can be regarded as syntagmatic. Another syntagmatic model, and one explicitly referred to as a grammar, was that of Propp [1928]: Of the 31 functions that could occur in a Russian folk [fairy] tale, no two could be mutually exclusive, and those that did occur, would do so in a strict sequence.

2.5.1.1 - The influence of Russian Formalism

Propp's work was a reaction to his dissatisfaction with early 20th century theories as to what constituted motif (the most fundamental unit of narrative) and also, dissatisfaction with the arbitrary methods of the classification of literary tales into types and themes:

"The most common division is a division into tales with fantastic content, tales of everyday life, and animal tales…involuntarily the question arises, 'Don't tales about animals sometimes contain elements of the fantastic to a very high degree?' And conversely, 'Don't animals actually play a large role in fantastic tales?'"

"[A] theme is usually defined in the following fashion: a part of the tale is selected (often haphazardly, simply because it is striking), the preposition "about" is added to it, and the definition is established. In this way a tale which includes a fight with a dragon is a tale 'about fights with dragons'…there being no single principle for the selection of decisive elements."

For Propp, it was impossible to hope to classify objects without first establishing their fundamental parts and separating these into constants and variables.
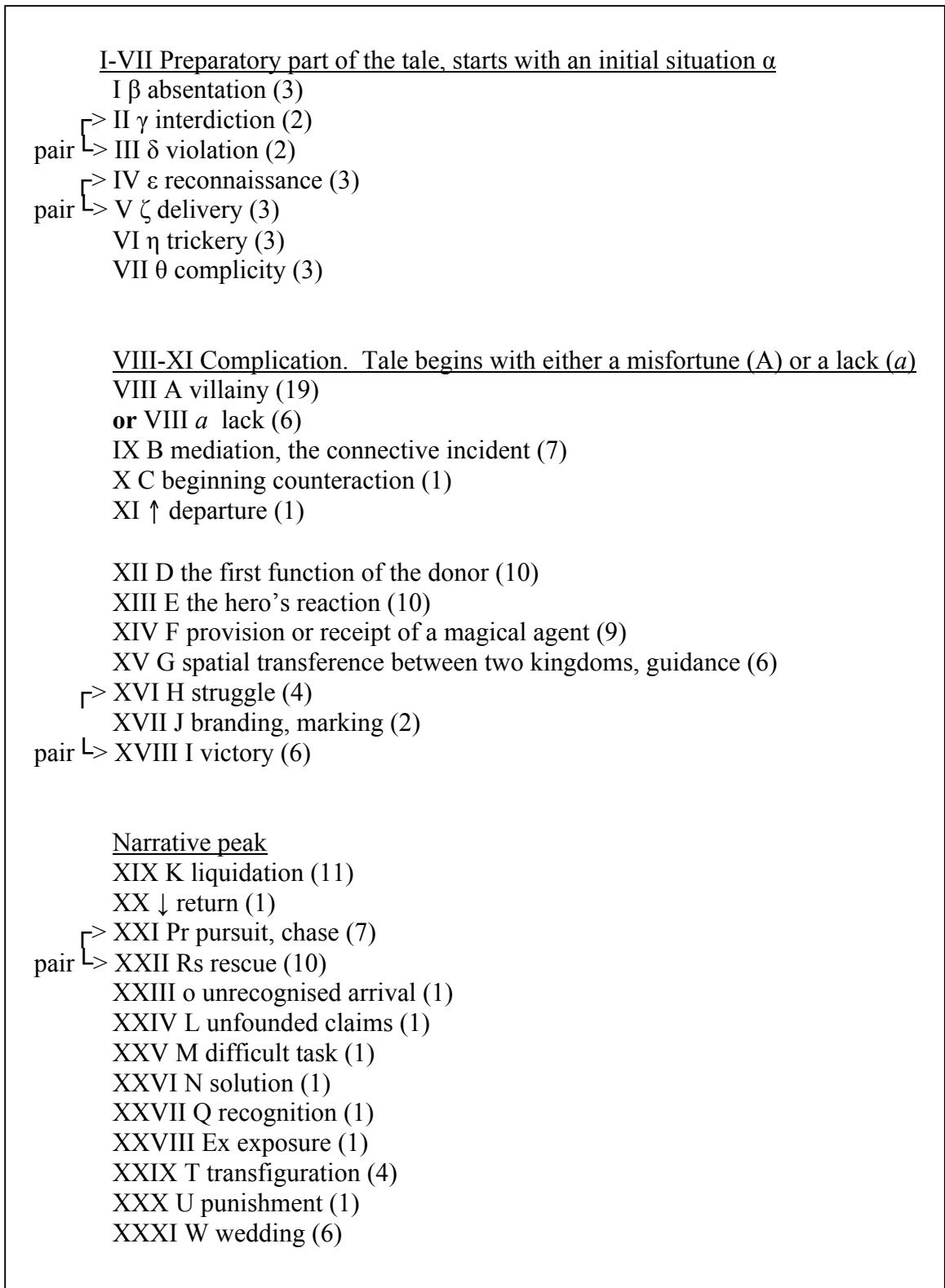
The former were the 31 functions, a function being a character action independent of the character, independent too of its manner of fulfilment, but dependent on its consequence. It will take too much space to reproduce them all but they read as a logical event sequence as shown in Figure 2.6. Apart from the functions, there are seven main character roles, what he called *dramatis personae*; each has a sphere of action, i.e. a set of functions that form a particular action sequence, as shown in Figure 2.7. This amount of detail as a minimum is necessary to show since Propp's

work has been very influential, informing many of the structuralist theories that will

be discussed in this and later sections.

Figure 2.6

Abbreviated definitions of functions, number of main variants (in parentheses alongside) and their groupings, taken from Propp [1928]

I-VII Preparatory part of the tale, starts with an initial situation α
  I β absentation (3)
  ⌐> II γ interdiction (2)
pair └> III δ violation (2)
  ⌐> IV ε reconnaissance (3)
pair └> V ζ delivery (3)
  VI η trickery (3)
  VII θ complicity (3)

VIII-XI Complication. Tale begins with either a misfortune (A) or a lack (*a*)
VIII A villainy (19)
or VIII *a* lack (6)
IX B mediation, the connective incident (7)
X C beginning counteraction (1)
XI ↑ departure (1)

XII D the first function of the donor (10)
XIII E the hero's reaction (10)
XIV F provision or receipt of a magical agent (9)
XV G spatial transference between two kingdoms, guidance (6)
  ⌐> XVI H struggle (4)
  XVII J branding, marking (2)
pair └> XVIII I victory (6)

Narrative peak
XIX K liquidation (11)
XX ↓ return (1)
  ⌐> XXI Pr pursuit, chase (7)
pair └> XXII Rs rescue (10)
  XXIII o unrecognised arrival (1)
  XXIV L unfounded claims (1)
  XXV M difficult task (1)
  XXVI N solution (1)
  XXVII Q recognition (1)
  XXVIII Ex exposure (1)
  XXIX T transfiguration (4)
  XXX U punishment (1)
  XXXI W wedding (6)

Figure 2.7

The seven character roles [dramatis personae] and spheres of action, taken from

Propp [1928]

Villain A+H+Pr

Donor (provider) D+F

Helper G+K+Rs+N+T

Princess (a sought for person) shares action with princess' father J+M+Q+Ex+U+W

Dispatcher B

Hero: VIIIA allows victim-hero (↑+E+W)

    VIIIa allows seeker-hero (C+↑+E+W)

False hero C+↑+E+L

This linear arrangement of the 31 functions did not preclude repetition and omission however. As can be seen in Figure 2.6, the first function after the introduction allows a branching to stories about search and stories about villainy. Whilst remaining within the rules, a tale can be organised as a number of moves, concurrent or sequential, where each corresponds to a forward movement from somewhere between VIII and XXXI.

Propp concluded by his analysis, that he had established a definition of theme; it was entirely a structural matter. If a given fairytale had this common structure, then it was of the theme. Then for any such pair of fairytales, no matter how slightly or greatly they differed in the detail of their respective structures, they would be regarded as merely variant one from another.

Dundes ([1963], 1964) in addressing the argument that North American folktales were unstructured, applied Propp's morphological framework, modified to allow a restricted choice of function [allomotif] to fit a particular motifemic slot in a given sequence. He discovered that they did indeed have predictable structures, but this was masked by highly variable content. The most minimal sequence was disequilibrium (Lack) followed by equilibrium (Lack Liquidated). A common sequence was 'Interdiction → Violation → Consequence', with an optional 4th motifeme: '→ Attempted Escape'. Another common sequence was the concatenation of these two: Lack →Lack Liquidated → Interdiction → Violation → Consequence (→ Attempted Escape).

2.5.1.2 - Selective remembering

Another very early model that has likewise received perhaps more attention in recent years than when first published came about as a result of a study conducted to find how people recall stories. The actual story used was a folktale of about 300 words in length, selected partly on the basis that it belonged to a culture quite different to that of the subjects. The most striking thing that Bartlett [1932] found was a 'rule of structure' operating not only as versions were recalled but during the perceiving stage too. A story had a 'general outline' and gave a 'general impression' of type. Certain details that were outstanding to begin with were present in subsequent recalled versions without transformation or rearrangement. It was these salient details and their fixed order over reproduction that allowed one to say that stories have repeatable, predictable structures. Other less salient details in that they did undergo

transformation and rearrangement on subsequent recall, provided evidence that style, rhythm, precise mode of construction were less persistent.

2.5.1.3 - Freytag [1863]
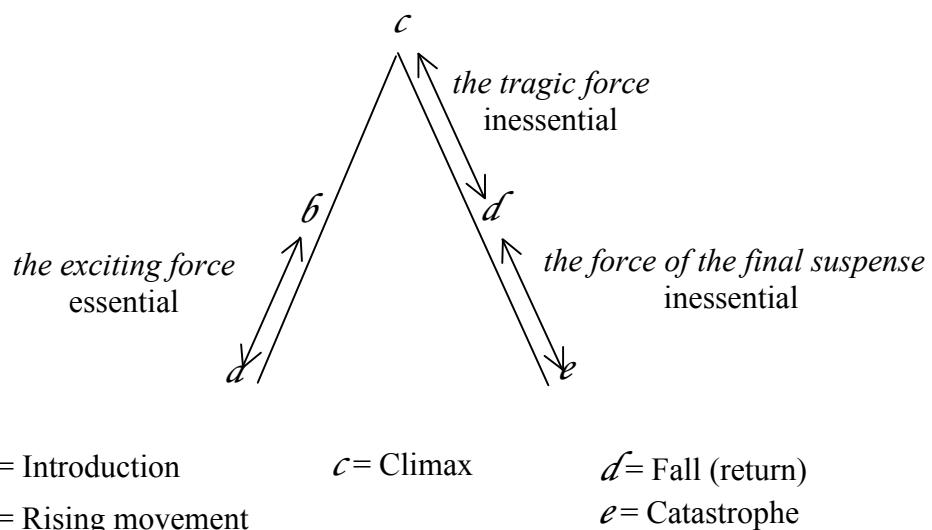
A still popular model, securely based on Aristotle's tragedy, is Freytag's pyramid. Incidentally, in his description of the tragedy as a dramatic form, Freytag also brushes against an issue as to whether Aristotle's identification of tragedy subgenres, included the 'spectacular' as well as the pathetic and the ethical (Potts, 1968). For Freytag, the spectacular and the tragedy, occupy the same level, both being subgenres of the 'serious' where the latter occupies the same level as the comedy. The spectacular drama dispenses with the inevitable death at conclusion that is the hallmark of the tragedy but in such a way as to not disappoint the spectator.

Freytag proposed five parts, each corresponding to an angle or a vertical side. From the lower left *Introduction* there is a *rise* to the *Climax* apex then a *fall* to the lower right *Catastrophe*. These five parts, each of which can contain one or a series of scenes, are bound and separated by three dramatic forces. The arrows in Figure 2.8 show the position and span of the forces. The first force is essential for any tragedy whereas the other two are recommended adornments. The *exciting force* corresponds to the complication and the *tragic force* corresponds to the irony which marks the beginning of the denouement. The *force of the final suspense* is a preparation for the catastrophe.

The pyramid serves only as the basic structure of tragedy however; the downward slope is not always so direct. When either or both the optional parts are included, the *tragic force* can give the effect of a double apex and the *force of final suspense* always involves a secondary rise.

Figure 2.8

Freytag's Triangle

a = Introduction c = Climax d = Fall (return)

b = Rising movement e = Catastrophe

2.5.1.4 - Triad model

The main difference in the model of Bremond [1966] and most others looked at in this section is that perspective is paramount "Each agent is his own hero. His partners are defined from his point of view as allies, adversaries etc." but the following quote contains a description of what narrative consists of besides.

> "All narrative consists of a discourse which integrates a sequence of events of human interest into the unity of a single plot. Without succession there is no narrative, but rather description (if the objects of the discourse are associated

through spatial contiguity), deduction (if these objects imply one another), lyrical effusion (if they evoke one another through metaphor or metonymy. Neither does narrative exist without integration into the unity of a plot, but only chronology, an enunciation of a succession of uncoordinated facts. Finally, where there is no implied human interest (narrated event neither being produced by agents nor experienced by anthropomorphic beings), there can be no narrative, for it is only in relation to a plan conceived by man that events gain meaning and can be organized into structured temporal sequence."
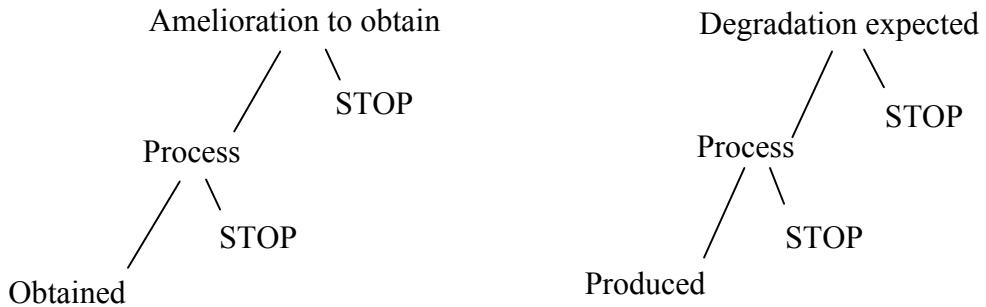
Bremond was inspired by Propp to imagine a comprehensive classification system similar in its utility to those developed for botany and biology. His theory takes as a starting point and without any modification whatsoever, Propp's *function* as the basic narrative unit. An elementary sequence comprises a function triad, where the first function opens a process with an action or event potential, the second is the realization of the action or event, and the third closes the process with a result of the action or event. The departure now from Propp is that the narrator determines whether and how these functions execute: that once in a position of potentiality, the narrator chooses whether to remain there or to proceed to realization. Likewise, the narrator is free to choose whether to then proceed to a result or to stop. These freedoms might however, present a problem of how to ensure and maintain narrative flow. There are three mechanisms for dealing with this and these are described next.

Firstly, the elementary sequence itself presents a dichotomy. On the one hand it can describe an amelioration (movement towards equilibrium), and on the other hand it can describe a degradation (movement towards disequilibrium).

Figure 2.9

Narrative choice and the elementary sequence, adapted from Bremond, 1980

Bremond's model also departs from other theories in that it doesn't as we might expect, accommodate the minimal narrative as the elementary sequence. Instead, narrative is regarded as cyclical: an initial disequilibrium is followed by equilibrium or vice versa. It is then an optional matter whether the cycle is repeated and for how long. This joining of elementary sequences produces a complex sequence; three configurations are possible: *end-to-end series*, *enclave* and *coupling*.

Figure 2.10

End-to-end series, adapted from Bremond, 1980
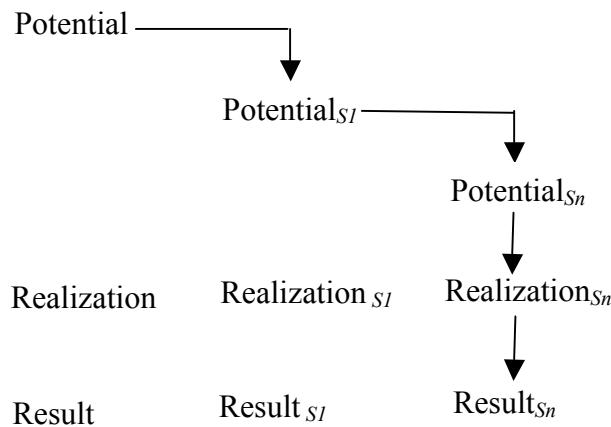
An end-to-end series links two or more elementary sequences. In this example, the equality symbol indicates that the *Result* function of one is simultaneous with, yet distinct from, and from the same perspective as the *Potential* function of another.

Figure 2.11

Enclave, adapted from Bremond, 1980

$$
\begin{array}{lll}
\text{Potential} & & \\
& \text{Potential}_{S1} & \\
& & \text{Potential}_{Sn} \\
\text{Realization} & \text{Realization}_{S1} & \text{Realization}_{Sn} \\
\text{Result} & \text{Result}_{S1} & \text{Result}_{Sn}
\end{array}
$$

The enclave is where two or more simultaneous sequences describe the same process but at different levels of specificity (*Sx*). In the diagram, the most general is positioned on the left and the most specific on the right.

Figure 2.12

Coupling, adapted from Bremond, 1980

$$
\begin{array}{ccc}
\text{Potential}_a \rightarrow & \text{Realization}_a \rightarrow & \text{Result}_a \\
\textbf{vs} & \textbf{vs} & \textbf{vs} \\
\text{Potential}_b \rightarrow & \text{Realization}_b \rightarrow & \text{Result}_b
\end{array}
$$

Coupling makes possible, alternative perspectives. In the diagram the elementary sequence as seen from perspective *a*, is distinct from but simultaneous with the elementary sequence as seen from perspective *b*. More specifically, these differing perspectives apply to all three simultaneous functions as indicated by the symbol vs.

Amelioration and degradation as opposing forces can apply to any of the three configurations. In the coupling for example, perspective *a* might describe a worsening situation and perspective *b* an improving one; in the enclave, increasing specificity calls for more detail and the introduction of new polarities; in the end-to-end sequence a previously regarded bad situation, when followed by an even worse one is in retrospect regarded as good in comparison.

Using these rules, Bremond suggests schemas for the following narrative situations:

Pursuing a goal – This typically involves a single perspective, the beneficiary, who by some chosen means must eliminate an obstacle in their path.

Credit and Debt – At it simplest, this would require two perspectives: that of the receiver and the giver. End-to-end series extension allows the original beneficiary to become obligated and the original benefactor to become a beneficiary which gives four perspectives in total.

Negotiation – A seduction and a conception of need would involve at least two perspectives, but by developing a pact the seducer and the seduced also share a common perspective. Two enclaves describe in more detail, the actions of the seducer and the seduced respectively. Two end-to-end series are required to describe the pact.

Aggression – The infliction and the avoidance of injury requires two perspectives: aggressor and a victim. One enclave is used to describe in more detail, the actions of the aggressor.

Entrapment – A more specific form of aggression still requires a perspective for the deceiver and victim respectively. The schema also contains three enclaves to describe in more detail, the entrapment from the deceiver's perspective. Two end-to-end series are needed for this more complex situation.

Deception – A yet more specific example of entrapment has an enclave showing how the deceiver makes one thing appear as another. Meanwhile, the dupe develops false belief.

2.5.1.5 - Regularity in natural narrative

Although Bremond was ultimately concerned with classifying the literary, he pointed out that anthropology was the bedrock for a structural analysis of narrative and that the basic narrative situations he was able to describe schematically are just those found in human behaviour, the source of narrative material. In contrast, Labov and Waletzky (1966) were working directly with oral personal experience narratives taken from a particular community. They too were concerned to identify the basic functional units of narrative, and also to determine the overall structure. Examination of the narratives collected gave rise to two further questions:

How can one tell whether a narrative is partial, complete, singular or multiple?

How does verbal clause sequence relate to experiential event sequence?

There are according to Labov and Waletzky, two functions of narrative: to refer to events experienced and to evaluate the experience. Narrative consisting only in the former is "empty"; this is an argument that will be picked up in Section 2.7.2.1. Here

concentration is on the referential function, in particular what the various elements are, how they function and how they combine into the normalised narrative structure that these authors have identified.

The temporal interpretation of a narrative can differ from the clause sequence as spoken by the narrator. That is, a constant semantic structure underlies a variable surface structure. The essential temporal link between narrative clauses, whether explicit or implicit, is *then*.

They define a *narrative* clause as one that must occupy a given position in a temporal sequence of clauses, that if moved to another position would alter the original meaning of the narrative. A clause which can be repositioned anywhere throughout the narrative without affecting the original temporal interpretation is a *free* clause. One that can be repositioned with less freedom is a *restricted* clause. Clauses with identical repositioning scope are *coordinate* clauses; all free clauses are therefore coordinate clauses, they are unordered with respect to each other. A *time juncture* marks the temporal link between any pair of narrative clauses in the event that one or more free or restricted clauses are repositioned there. A string of such clauses, with time junctures manifested by an explicit or implicit *then* is the *primary sequence*. Isolating the primary sequence is achieved by firstly, merging any coordinate clauses; secondly, abstracting and bringing to the leftmost position, any contained free clauses; next, as far as their respective repositioning scopes will allow, any contained restricted clauses.

For example, Figure 2.13 below shows on the right, the original narration and on the left, the arrangement obtained by isolating the primary sequence. At the topmost position are the *free* clauses; the + symbol separator indicates that they are *coordinate*, unordered with respect to each other. Following the *free* clauses in the second paragraph are the *restricted* clauses. Restricted clauses that are also *coordinate* are separated by the + symbol; those that are part of the *primary sequence* are marked *(Px)*.

Figure 2.13

Isolating the primary sequence, adapted from Labov and Waletzky, 1966

Yeah, I was in the Boy Scouts at the time. + And we was doing the 50-yard dash, + racing, + but we was at the pier, marked off, + and so we was doing the 50-yard dash. + There was about eight or nine of us, you know, going down, coming back. + Scoutmaster was up there.
He was watching me. + But he didn't pay me no attention either. And, going down the **third** time, I caught cramps *(P1)* and I started yelling "Help!", but the fellows didn't believe me, you know. + They thought I was just trying to catch up, because I was going on or slowing down. So all of them kept going. + They leave me and so I started going down. *(P2)* And for no reason at all there was another guy, who had just walked up that minute... *(P3)* He just jumped over *(P4)* and grabbed me.

Yeah, I was in the Boy Scouts at the time. And we was doing the 50-yard dash, racing, but we was at the pier, marked off, and so we was doing the 50-yard dash. There was about eight or nine of us, you know, going down, coming back.
And, going down the **third** time, I caught cramps and I started yelling "Help!", but the fellows didn't believe me, you know. They thought I was just trying to catch up, because I was going on or slowing down. So all of them kept going. They leave me.
And so I started going down. Scoutmaster was up there. He was watching me. But he didn't pay me no attention either. And for no reason at all there was another guy, who had just walked up that minute... He just jumped over and grabbed me.

The minimal requirement of a *singular* narrative is that it consists of a sequence of clauses containing at least one time juncture, i.e. event-*then*-event.

The overall narrative structure was generally found to consist of five parts: orientation, complication, evaluation, resolution and coda.

The *orientation* part is so named because it orients the listener by establishing such things as person, place, time and situation. The clauses comprising the orientation are generally free, a flexibility that has been built into more formalised story grammars, as will be seen in Section 2.6.

It is in the *complication* part that the presence of *multiple* narratives may be identified. That is, it is possible for the complication part to consist of perhaps several cycles of simple narratives. A narrative that only comprises a part of the complication and/or a resolution is *minimal*.

The *evaluation* part if present is the means by which the narrator's perspective on the events narrated is revealed.

The *resolution* either comes after or is coincident with the evaluation.

The function of the *coda* is to mark the end of the narrative time and a return to the present moment in time. If a coda is present, it necessarily follows the resolution, with the link being a temporal juncture.

2.5.2 - Paradigmatic models

The division into the syntagmatic and the paradigmatic is perhaps more a division into the sequential and the synchronous. Only in this way can there be differentiation of theories which arguably, place relatively less emphasis on the sequence of functions and more on the potentiality of functions as variables. Research in this subsection is less concerned with the logical sequence of relatively low level functions, and more concerned with what constitutes a function at a high level of abstraction.

2.5.2.1 - Structure of myth

Structuralism as a broad movement has influenced predominantly, three areas of research: linguistics, literary theory and cultural anthropology. In case it is complained that investigation of the structure of myth must be so different to that of the story, that it should not be pursued here, Levi-Strauss [1973] reminds us that Propp's division of the "fairy tale" and the folk tale was firstly quite arbitrary, and then goes on to consider the folk tale as a form of myth but lacking an evolutionary dimension and consequently, the extremes of opposition found in the myth.

In his earlier structural study of myth, Levi Strauss [1958] provides a paradigmatic model. A mythical story has at least three dimensions, and a given version comprises two of these. The first task was to isolate the smallest structural unit, of the order of the smallest possible sentence, the mytheme. The next stage was to arrange the mythemes following the order in which they appeared in a given version of the myth into columns and rows, such that the mythemes comprising a given column had a

common feature, making them a category of mytheme. In order to read a given version of a myth, one would proceed from left to right, mytheme by mytheme from top to bottom. In order to *understand* that version one would proceed not elementally but category by category, left to right. Viewed in this way, the category simultaneously entails all its variants. Using this model, the understanding of a given myth in its entirety would be to proceed category by category from front to back through a stack of similarly constructed versions. That is, meaning would be found it was argued, in a myth's many variations, not in any one of them and not in any archetypal subset.

2.5.2.2 - The actantial model

The actantial model of narrative structure proposed by Greimas [1966] drew on at least four theories. The first is Levi-Strauss' theory of opposition which states that a given concept *A* is impossible to comprehend without the equal and opposite concept *Not A*, and how *A* necessarily entails *Not A*, and thereby every possibility between. The second is the syntactical functioning of discourse. The third and fourth are the inventories of [actants] proposed by both Propp and Souriau (1950), referred to as "dramatis personae" and "dramaturgic functions" respectively. Although Souriau's six actants apply to theatre, they are shown in Figure 2.14 below so that they can be compared to the seven suggested by Propp in Figure 2.7 above.

Figure 2.14
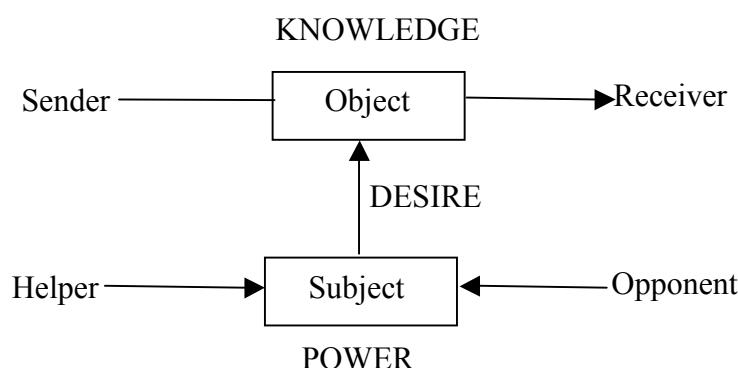
Souriau's six dramaturgic functions with corresponding Dramatis Personae, adapted

from Porter, 1977

Dramaturgic Function	Symbol	Signification	Dramatis Personae
Directed Thematic Force	Lion	Pitting of wills	Hero
Opponent	Mars		Villain
A desired Good	Sun		Princess
Recipient of that Good	Earth		
Helper	Moon		Helper
Arbiter	Balance	Authority figure grants the Good	

There are six actants in Greimas' model that form three pairs: subject vs. object,

sender vs. receiver and helper vs. opponent. These pairings in turn constitute three

relations: desire (felt by the subject for the object), knowledge (communication

between sender and receiver) and power (struggle between helper and opponent).

Figure 2.15

The actantial model, adapted from Greimas, 1983

When instantiated, Subject and Receiver may combine and so can Sender and Object. That is, there can be a duality of roles: (one desires and receives something in the other who sends). Helper and Opponent may likewise combine with Subject, being at once the will yet resistance to act in fulfilling desire. Conversely, a single actant may be instantiated with more than one actor.

Applied to the universal plot of a story, it has a hero who in wanting to achieve, must become more knowing and thus able.

2.5.3 - Combination models

The combination model views the story as having a more or less constant sentential structure on the one hand, and on the other hand, as accommodating variability through deep instantiation and interdependency.

2.5.3.1 - Linguistic parallels and non-parallels

The much cited work of Todorov (1969) is his analysis of plot structure in Bocaccio's Décaméron, a collection of stories that come close to an "ideal" he set forth just one year earlier. To take a noun and a verb says Todorov [1968] is to take the first step towards narrative. The "ideal" narrative, he explains, and not all narratives are "ideal", begins with an equilibrium that is disturbed by a directed force, resulting in disequilibrium; this is followed by a second force acting in the opposite direction and bringing about a new equilibrium similar to the first. This requires two kinds of

episode: one to describe the relatively static and potentially iterative states and another to describe the non-iterative transition states. These kinds of episodes have their parallels in speech: the adjective and the verb respectively. Proper nouns meanwhile, being devoid of properties, are analogous to agents, which have no intrinsic meaning, only acquiring it by being associated with a predicate. Todorov also suggests that certain secondary categories of linguistic grammar are just as applicable to a narrative grammar. However, new categories must be forged when one moves beyond the level of individual propositions (statements) to considering how they are related. There can be three kinds of relationship: temporal, logical (implication and presupposition) and spatial (resemblance). At this new *sequence* level, different types of propositions are distinguishable: alternative, optional and obligatory. The obligatory propositions must appear at designated places in the sequence; it is these that are essential to the plot. The optional propositions can appear anywhere or not at all; it is these that provide "the salt of the story". Of the alternative propositions, only one can appear; and it is these alternative propositions that one would look to if one were to attempt to establish a typology of narrative.

2.5.3.2 - Three level narrative model

Barthes [1966] offered a model of narrative that was in keeping with the research of the time. He proposed that a narrative work consisted of three levels: narration, actions and units. The narration level is correspondent with to Todorov's 'discourse' and the actions with the 'actants' of Greimas. As for the units, there can be two kinds: integrative and distributive. The latter correspond to the functions of Propp and Bremond. Generally, the model allows that units at the lowest level can depend

for their meaning on the actions at the intermediate level, which in turn obtain meaning from the narration level.

A functional unit, by definition, is never accidental or extraneous; whether immediately or subsequently, it will have significance for the reader or listener. Functional units are not linguistic units although the latter must carry them. Each takes as its value, the connotative value of its carrier.

The second kind of unit, Barthes refers to as indexical. The difference between it and the distributive kind is that indices are semantically dependent on higher narrative levels, even extending outside the narrative altogether, in the case of metaphor for example, whilst the distributional are semantically dependent on the same narrative level. This classification of the unit also divides narrative kinds. The functional narrative (e.g. popular tales) requires the reader or listener only to look ahead; the indexical narrative (e.g. psychological novels) requires them to search up and out in addition.

Functions and indices are further divisible, making four classes in all; and a given basic narrative unit can at the same time, fall into more than one class.
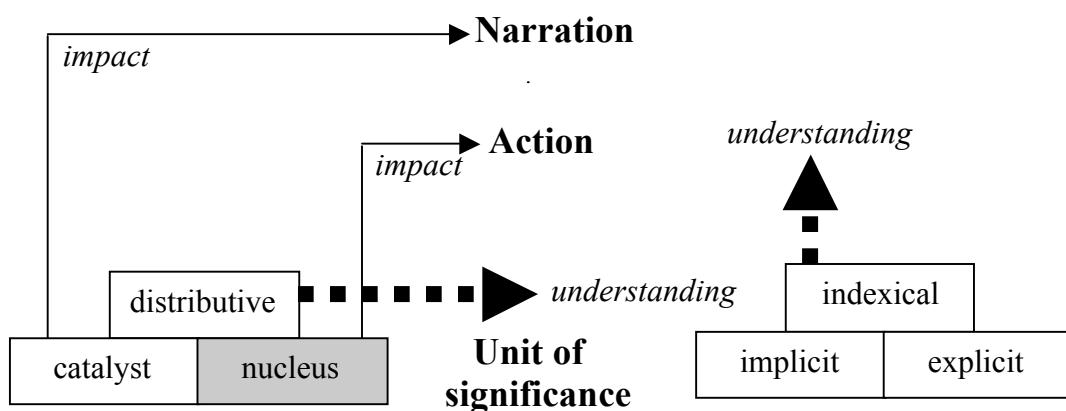
Functions divide into nuclei (cardinal functions) and catalyses. Nuclei are consecutive and consequential; catalyses are just consecutive. To delete a nucleus would be to alter the story whereas to delete a catalyst would be to alter its telling.

Indices likewise divide into indices proper and bits of information (informants); the difference between them being that they signify implicitly and explicitly respectively.

The nuclei are the necessary and sufficient basic units; the other three provide optional expansion.

Figure 2.16

Diagrammatic interpretation of Barthes' operation and levels of narrative

An argument that we will present in Section 2.7.2.5 below is that chronological ordering of events is but one of many possible ways to organise narrative. The significance of time in a culture may explain the seeming necessity for narrative to assume overall, a logical chronology. Still, it may be that individual actions have a particular sequence; and for Barthes this was a logical string of nuclei, linked by choice. However, he was concerned to ask, "Does the operation of naming sequences belong exclusively to the analyst? …one could argue that it is part of a metalanguage elaborated by the reader (or listener) himself … to read is to name; to listen is not only to perceive a language but to construct that language." Nevertheless, Barthes

does name them but in such a way that they could cover a great variety of meanings and nuances. These sequences do not necessarily complete; there is that element of choice separating the hand held out in greeting and the hand that accepts the hand and completes the greeting sequence. Because "narrative pulls in new material even as it holds on to previous material" these sequences can also overlap. A clean break between sequences marks a functionally independent episode or subplot, and it is here that the reader or listener, to get a sense of continuity, must access the action level above.

Because all action ultimately derives from them, there can be no narrative without characters. The problem faced though is what should merit this classification, and how should they be regarded, as *who* they are (psychological beings), *what* they are (relational beings), or what they *do* (participatory beings). Perspective is an issue, even when one treats characters as participating in actions: both between characters, vying for ownership of a shared sequence, and within the same character. One needs also to consider the various possible character arrangements: single (hero) or double (opposition). In any case, the suggestion is that linguistic referents: *you, I, he, they* would provide the keys to the character units at the action level. Once again, it is at the next level, that these action units become intelligible.

When it comes to the narration level, Barthes finds inadequate the three accepted conceptions of narrator: the personal, the omniscient, and the character. This treats character and narrator as if they were real, when they are properly 'paper' beings. Narration like language only admits two systems: personal and apersonal. One can identify which system is in operation by replacing the marks of the apersonal e.g. 'he'

with the marks of the personal e.g. 'I'. If the result reads or sounds sensible, then the personal system is in operation, otherwise it is the apersonal. There can also be a mix of the personal and the apersonal, even within a single sentence.

2.5.3.3 - Narrative units and narrative objects

Greimas' actant model described above, used originally to model myth, was later used as the basis for formulating a generalised narrative grammar which tried to reconcile Levi-Strauss' and Propp's conceptions of narrative structure (Greimas, 1971). He observed that narrative structures generally and not just myth and folktale "present characteristics that are remarkably *recurrent*…allow[ing] for the recording of distinguishable *regularities*…thus lead[ing] to the construction of a *narrative grammar*". The grammar would consist of narrative units and rules for their combination and functioning, and would produce narrative objects. These narrative objects would be deep structures relative to narrative signs at the surface structure. A narrative grammar would require two levels analogous to, but more fundamental than the two levels of linguistic grammar.

Two elementary units were identifiable. The first was the narrative unit; it comprised two actants (nouns) combined by a function where the function was an action (doing) verb. The second was the non-narrative unit, which would not be part of the grammar; it comprised just one actant and one function where the function was a stative (being) verb.

Two kinds of doing were *active* and *commutative*.

Active doing relates *subject* and *object* actants (S→O)

Commutative doing relates *sender*, *receiver*, and *object* actants (D$_1$→O→D$_2$).

These two, in the order given, constitute the basic narrative object, wherein the *active* doing refers to *event* and the *commutative* doing refers to *contract*.

The functions on their own are not sufficient for describing modal verbs. These require a subclass of narrative unit where the *object* actant is replaced by an elementary narrative unit. In this way, such actions as 'wanting', 'knowing how' and 'being able' are accommodated by the grammar. Now, the logical sequence only implicit in the actantial model described in Section 2.5.2.2 is made explicit by the grammar: 'being able' presupposes 'knowing how' which presupposes 'wanting'.

2.6 - The Grammar Models

As noted in Section 2.4 above, an arbitrary line has been drawn between grammars that are expressed in the form of explicit rewrite rules and those that aren't. The sole reason for doing so is to try to organise a great many, very similar theories. In Section 2.5 it was to some extent possible to separate the pioneering grammar and schema theories into syntagmatic, paradigmatic and combination models. Here, they can similarly be divided according to whether they have a transformational component or are entirely context-free. In addition there can be differentiation between those that are goal-directed and those which are not. It is found that grammars from literary and cultural studies tend to be more accommodating, whereas

research in story understanding tends to produce goal-directed grammars. The reason this is so is that according to experimental evidence (Mandler and Johnson, 1977), recall for stories with goal paths and canonical structure is greater than for stories without. The reason they give is that the story is originally an oral medium and so there needs to be some mechanism for ensuring it does not degrade during exchange.

Table 2.4

Grammar Models within Story Research Domain

Grammar Models			
Grammar Type:	**LITERARY**	**CULTURAL**	**COGNITIVE**
Phrase-structure			Rumelhart 1975 Thorndyke [1975] Mandler & Johnson 1977 Stein & Glenn 1979 Shen 1989
Transformational	Prince 1973 Ryan 1979 Pavel 1985	van Dijk 1972 Colby 1973	Johnson & Mandler 1980

2.6.1 - Goal directed and context-free

All the models in this subsection were developed as a means or result of story understanding research. Because they are only slightly different, just one (Thorndyke, 1977a, 1977b) is selected for detailed description and four more for discussion (Rumelhart, 1975; Mandler & Johnson, 1977; Stein & Glenn, 1979 and Shen, 1989). All at the highest level of analysis specify a static part (setting) followed by a dynamic part (episode) and these two are always on the same syntactic and semantic level. The story grammar consists of successive syntactic and semantic levels, where each adjacent pair is associated by a particular rewrite rule. The input to a rule is always a single non-terminal node. The output from a rule may be one or

more terminal and/or non-terminal nodes. Certain rewrite rules specify how these conjoin, others specify choice, sequence and so on. Ultimately, the nodes at the most specific level of description, the terminal nodes, are instantiated by the propositions comprising the story text. The parsing of a story's text by the grammar creates as output, a tree where each node represents a structural component of the story and each branch a relationship between them. Horizontal branching indicates sequence, while vertical branching indicates movement from the general to the particular.

2.6.1.1 - A pioneering story grammar

Rumelhart (1975) developed a grammar for simple stories where story was defined as *a kind of structured discourse which centres around the reactions [i.e. responses of a wilful being to prior events] of one or more protagonists to events [i.e. state changes or actions or the causing of state changes or actions] in the story.*

According to the grammar, a simple story consists of a setting and the episode. The setting contains the time and the place of the story and introduces the main characters. Syntactically, the setting is precursor to episode but semantically, it can be dispersed within it. There are eighteen syntactical terms and eleven rules, one of which permits recursive event sequences. Most of the rules have a semantic component that describes the relationships comprising its output part. The semantic vocabulary consists of six terms: AND, ALLOW, INITIATE, MOTIVATE, CAUSE and THEN.

Stein and Glenn (1979) after encountering limitations in the applicability of Rumelhart's grammar developed their own. They simplified the grammar by

amalgamating the semantic and syntactic components. Another difference is that in their model, episodes can be conjoined but not embedded, whereas the reverse is true in Rummelhart's grammar. Perhaps for the very reason that it is a finite state grammar, it is still the chosen model for teaching children how to write stories (Harris, Graham and Mason, 2006).

2.6.1.2 - A concise grammar

One difference between Rummelhart's grammar and the one proposed by Thorndyke [1975], also for simple stories, is that the latter defines plot and theme. Both permit recursion, but it is only Thorndyke's story grammar that explicitly provides for a complex or embedded plot. Partly for that reason and partly because it is more concise than the others it is reproduced here.

Figure 2.17

Reproduction of Thorndyke's grammar (1977a, 1977b) with explanations added

Rule 1: Story → Setting + Theme + Plot + Resolution
I.e. a story is composed of a setting, theme, plot and resolution

Rule 2: Setting → Characters + Location + Time
I.e. a story's setting is composed of characters, location and time

Rule 3: Theme → Event(s) *optional* + Goal
I.e. a story's theme is composed of zero or more events and the story's goal

Rule 4: Plot → Episode(s)
I.e. a story's plot is composed of one or more episodes

Rule 5: Episode → Subgoal + Attempt(s) + Outcome
I.e. a plot episode has a subgoal, one or more attempts and an outcome

Rule 6: Attempt → Event(s) │ Episode
I.e. an attempt to attain a subgoal is either one or more events or an episode

Rule 7: Outcome → Event(s) │ State
I.e. an outcome of an attempt is either one or more events or a state

Rule 8: Resolution → Event │ State
I.e. a story's resolution is either an event or a state

Rule 9: Subgoal │ Goal → Desired State
*I.e. both the subgoal of an episode and the goal of the story's theme are
desired states*

Rule 10: Characters │ Location │ Time → State
I.e. a story's characters, location and time all involve state

2.6.1.3 - Basic nodes
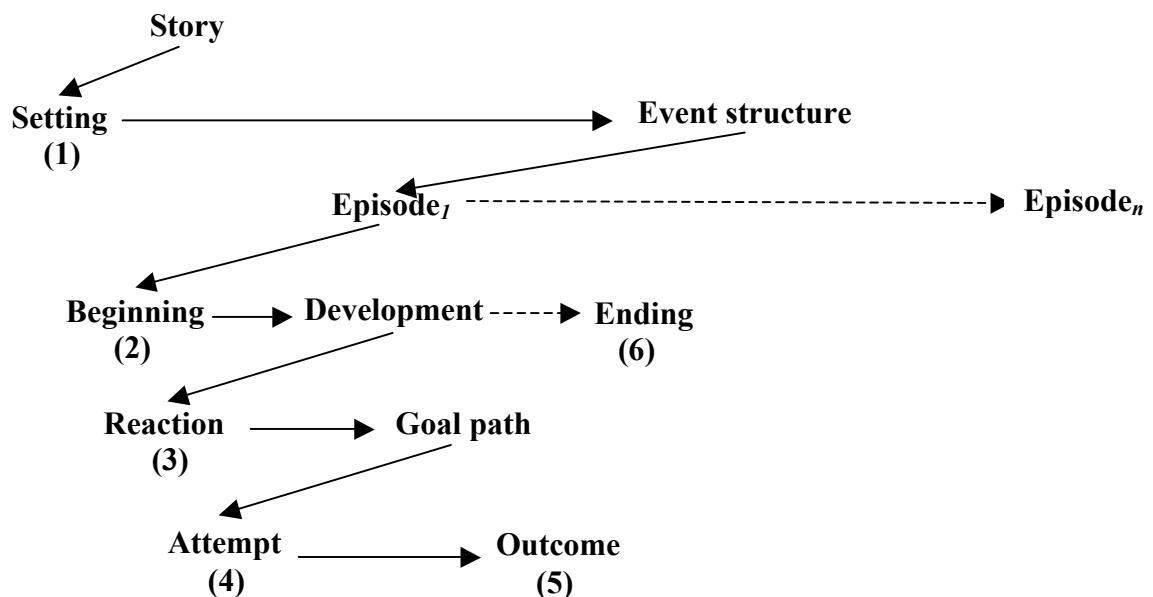
Rumelhart's grammar has also been adapted by Mandler and Johnson (1977). Apart

from permitting recursion, other differences between theirs and that of Stein and

Glenn (1979) is that it has in its ENDING rule a provision for EMPHASIS, and this

makes it suitable for generating stories that have a moral or a lesson, e.g. fables.

Secondly, the grammar allows as a minimal story, one that does not include a goal, although this is very rare according to Mandler (1978). Regardless, there must be a protagonist, and a restriction in this respect is that there can only be one or several acting in concert per episode. The ideal story has a setting and one or more episodes. An episode is a causal linkage of beginning, development, and ending. The development can be either a simple reaction causing an action or a complex reaction causing a goal path.

The six most important nodes in terms of encoding and retrieval are the basic nodes, numbered in the order of their processing in Figure 2.18 below where solid and dashed arrows represent direct and indirect paths respectively.

Figure 2.18

Structure diagram, adapted from Mandler, 1978

2.6.1.4 - X-Bar story grammar

The final grammar discussed in this section is not inherently goal directed but is presented in those terms. Shen (1989) finds several shortcomings with the standard story grammar described above. He refutes the claims made of it: firstly, that its hierarchical structure provides a predictive model for recall, with the higher and lower nodes being predictably remembered and forgotten respectively, and that the higher nodes provide a story's essence while the lower nodes are more superfluous. Secondly, that it can distinguish the story and the non-story. He is also concerned that the standard story grammar theories lack adequate parsing procedures, the capability of assigning with confidence, a piece of text to the correct syntactic category. At the same time however, he ascribes these powers to a grammar that originates in linguistics. The X-Bar grammar when applied to stories comprises HEADS which incorporate the essence, and MODIFIERS that just elaborate the HEADS. The grammar is also compared to other goal-directed discourse processing models; the constituents of EPISODE being PROBLEM, TRY and OUTCOME. The HEAD node of the EPISODE is OUTCOME, whilst PROBLEM and TRY are MODIFIERS of the HEAD. The X in the grammar refers to the category: PROBLEM, TRY or OUTCOME and the bar refers to the number of projections there are from a given X to categories of the same type; e.g. PROBLEM″ entails PROBLEM′ which entails PROBLEM. The claim is that the greater the number of projected dependencies, the more central the projecting node is. The most central EPISODE is the first one sequentially encountered that meets the following three conditions:

(1) The PROBLEM is for a protagonist.

(2) The PROBLEM is not a sub-PROBLEM

(3) The EPISODE does not trigger another EPISODE in which (1) and (2) are true.

2.6.2 - Goal directed grammars with a transformation component

Lakoff is said to have proposed and submitted as an MA thesis in 1964, an early transformational story grammar. References to a rumoured later publication[1] are incomplete and direct requests to those that cite this work, the university and the author himself, have unfortunately yielded nothing. A significant contribution to early story grammars resulted from researching the oral stories within specific cultures, for example Dundes' work discussed above. The transformational grammar that will be described in this section is based on the case grammar of Fillmore (1968); it likewise resulted from researching stories within a particular oral culture.

2.6.2.1 - Eskimo stories

A folktale as described by Colby (1973) has at least five basic components:

(1) *Plot*: providing the basic sequence (chronos) of narrative thought (eidos)

(2) *Symbolic*: providing metaphor, metonymy and synecdoche

(3) *Dramatic*: providing interest and meaning

(4) *Poetic*: providing the words and rhythm

(5) *Linguistic*: providing the phonemes, syntax and semantics

Hitherto according to Colby, analysts of folk narrative had failed to differentiate (1) and (3). He provides in this paper a partial grammar for plot, which he expected

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[1] George Lakoff, Structural Complexity in Fairy Tales. The Study of Man, 1, 1972, pp. 128-150.

would apply to all and only Eskimo groups, for it is only in the stories of a homogenous culture that such regularities are found; if one sought regularities in the stories of more pluralistic cultures, they would need to look at circumscribed geographic areas or even to individual storytellers to find them.

Like all grammars, the plot consists of a hierarchy of units. The chief unit is the eidon and is equivalent to Propp's function except that it is defined in terms of higher order (*intermediate* and *move*) categories. Although the set of eidons are specific to Eskimo culture, some of them (villainy, departure, struggle, victory and return) are more universal. A concatenation of eidons in narrative sequence is called a base sequence.

There are three main categories of eidon: motivation, engagement, and resolution, and it is these that comprise a move.

There are sixteen rules in all; eleven are context-free and five are context sensitive. After showing the first two rules in Figure 2.19, the positions of the other fourteen are marked in Table 2.5 which is an adaptation of the original. It shows more clearly, the ordered hierarchical structure of narrative. In the leftmost column are listed the names of the three categories comprising a *move*. Only certain *intermediate* categories are relevant to a given *move* category, and these are shown in the centre column. In the final column listed in the sequence in which they must appear in the narrative, are the eidons themselves. Again, only certain eidon categories are relevant to a given *intermediate* category. All except rules 3, 6 and 7 which specify a choice of exactly one eidon, permit the choice of one or more eidons occurring in sequence.

The context sensitive rules are numbered 12-16; these link motivation eidons to resolution eidons or resolution eidon sequences according to whether the protagonist's concern is affective (rules 12 and 13), effective (rules 14 and 15) or competitive (rule 16). In the sense that the context sensitive rules permit greater variation, we choose to classify the grammar as transformational even though the eidons once selected are strictly ordered. There are in addition to the 32 primary eidons shown, several secondary eidons grouped under five more intermediate categories that are less strictly ordered.

At the level of the primary eidons however, what can be seen are similarities between this and Propp's schema; both emphasise the order of appearance of a relatively large set of plot elements that in some cases resemble one another. Greimas and Levi-Strauss on the other hand chose to reduce Propp's functions to a minimal set by rigorous and repeated abstraction so that there could be no likeness between members.

Figure 2.19

Rules 1 and 2, reproduced from Colby, 1973

Rule 1 $\quad$ Move$\longrightarrow$ M $\frown$ Resp^n
i.e. a Move comprises one Motivation followed by one or more Responses

Rule 2 $\quad$ Resp $\longrightarrow$ E^m $\frown$ R
i.e. a Response comprises one or more Engagements followed by one Resolution

Because Engagement and Resolution act as the response to a Motivation, and because every Motivation requires a new move, the minimal Eskimo narrative consists of a single Move and a sequence Motivation, Engagement and Resolution eidons.

Optionally, a given move may contain additional eidons from the Engagement category (E) and/or from the Engagement and Response (Resp) category.

Table 2.5

Rules 3 to 16, adapted from Colby, 1973[2]

Move Category		Intermediate Category		Context-Sensitive Rule	Ordered Primary Eidon	
Rule/Category		**Rule/Category**		**Rule**		
3[xor]	Motivation *M*	**6**[xor]	Value Motivation *VM*		Food Lacking	*Fl*
				14* ⟶	Spouse Lacking	*Sl*
				15 ⟶	Maturity Lacking	*Ml*
		7[xor]	Intermediate Motivation *IM*	**16** ⟶	Villainy	*Vl*
				12 ⟶	Betrayal	*Bt*
				13 ⟶	Separation	*Sp*
4	Engagement *E*	**8**	Preliminary Action *PA*		Encounter	*En*
					Hospitality	*Hs*
					Challenge	*Ch*
					Confrontation	*Cn*
					Provocation	*Pk*
		9	Main Action *MA*		Attack	*Ak*
					Fishing & Hunting	*Fh*
					Retrieval Attempt	*Rv*
					Persuasion	*Ps*
					Transaction	*Tr*
					Magical Engagement	*Me*
					Magical Aid	*Ma*
					Elimination	*El*
					Struggle	*St*
					Discovery	*Ds*
					Deception	*Dc*
5	Resolution *R*	**10**	Immediate Resolution *IR*		Victory	*Vc*
					Release	*Rl*
					Possession	*Po*
					Restoration	*Rs*
					Escape	*Es*
					Reunion	*Re*
					Murder	*Mr*
		11	Value Resolution *VR*		Group of Reference	*Gr*
					Settlement	*Se*
					Attainment	*At*

---

[2] Inconsistency in the definition of rule 14 links *Wl* (nowhere defined) to *Po* (Possession); it may refer either to *Sl* (Spouse lacking) or *Fl* (Food lacking).

xor = exclusive OR

2.6.2.2 - The extension of an earlier grammar

Rather more briefly now an extension of Mandler and Johnson's (1977) story grammar (see Section 2.6.1.3 above) will be discussed. Johnson and Mandler (1980) are concerned to provide just those transformations that do not in any way alter the meaning of the base story or adversely affect its form. Hence they have added a set of rules that allows the parsing of a surface structure that does not entirely conform to the ideal structure but which does not impede the reader's recovery of the canonical form. The alternative to allowing transformations of the base rules is to alter the base rules themselves, and thus make them unwieldy it is argued. The two major types of transformation considered are node deletion and node reordering. They identify three kinds of nodes that if deleted would still allow a story to be well formed, though subject to conditions of redundancy; these are beginnings, complex reactions and endings. Within a given episode, only one of these nodes can be deleted. Also within a given episode, they identify the goal as being the constituent that can be moved. Over a sequence of episodes which according to the base rules are conjoined by AND, they permit a kind of parallelism. There are various ways of doing this but essentially, the *beginnings* of episodes are moved to the front of a replacement single episode where they CAUSE the respective *developments* which in turn CAUSE the respective *endings*.

2.6.3 - Non-Goal directed grammars with a transformation component

As remarked earlier, it is common for the researchers, authors and reviewers of narrative structure theories to refer to them abstractly as narrative grammars but we shall attempt to separate these from examples that are actually based on linguistic

grammars. The main structuralist argument for this is that narrative like language itself is rule governed and that once in possession of those rules one has a narrative competence akin to a linguistic competence, whether or not it is realised at a performance level. Just as a sentence grammar is capable of generating every conceivable grammatical sentence, a narrative grammar theoretically, has similar capability. However, the last section showed that in story understanding research, the generative potential is quite low, typically allowing just those stories with goal directed plots. The text grammar (van Dijk, 1972) was an ambitious effort to develop a grammar that would supersede the sentence grammar. It was argued that the latter was inappropriate for generating anything longer than a sentence and that the text was not just a concatenation of sentences. The text grammar as conceived would model human ability to generate and process every kind of discourse including literary, and even if confined to the literary, there are so many kinds that a schema theory would be insufficient. van Dijk's model though mostly theoretical is sufficiently detailed to warrant inclusion in this section. It is described in terms of macro- and micro-structures. The macro-structure has a set of context free rules for deriving the abstract logical form. The micro-structure refers to the sentences and their linear relations at the surface level. Transformational rules relate the two levels. One such potential transformation is the disambiguation of metaphor, a process that is complicated if the metaphor is not merely linguistic; i.e., where people interpret differently; it is for cases like these that the grammar would need to have a pragmatic component.

2.6.3.1 - Simple and complex grammars

For a rather less ambitious grammar, attention turns now to an implementation, this time entirely based on Chomsky's generative and transformational grammars. The domain is literary and therefore the discussion takes into account different literary styles and devices revealed by the story's structure.

Prince (1973) builds the grammar gradually, starting with the minimal story then progressing through a kernel simple story to the simple and finally complex story.

In order to fulfil the requirement of a minimal story, a text must contain exactly three conjoined events, where the first is a state, the second is an action, and the third is the inverse of the first. The first state would temporally precede the action, and the action would cause as well as temporally precede the inverse state. The minimal story requires exactly three conjunctions, two specifying chronology, e.g. *then* and one specifying causality, e.g. *as a result*. State events and action events respectively, are indicated by the presence of *being* verbs e.g. *was*, and *doing* verbs e.g. *met*.

The kernel simple story contains exactly one minimal story (now called narrative events) and is spatio-chronologically ordered. It consists of three or more conjoined episodes where an episode is any group of conjoined states or actions belonging to the same time sequence. An episode that contains a narrative event is called a narrative episode. The same time sequence is indicated by such conjunctions as *and*, *but* and *when*. A kernel simple story has less narrative, and is therefore less recognizable than the minimal story. Generally, the more narrative events a story has, the more recognizable it will be.

The grammar obtained thus far is called grammar G. It is severely limited however because it only permits stories directed forward in time. Although oral stories tend to be more chronological than written stories, Prince observes that it is rare for a story to be entirely chronological. For example, cause and effect are not always presented in that order. To cope with chronological violations, grammar G must be extended with transformational rules.

The single requirement of a simple story is that it must contain exactly one minimal story (three narrative events). It is therefore less restricted than the kernal simple story. Depending on which transformation rule is applied, the sequence of events will rearrange and a *before* and/or *after* will be inserted in the appropriate position.

To get around the simple story restriction of containing exactly one minimal story, another set of transformation rules is added to grammar G. The simple story being the equivalent of one of Propp's moves can thereby be transformed into a component of a complex story.

There are three basic ways to combine component stories: conjoining, embedding and alternating. Conjoining is the most simple, it just appends component *B* to component *A* and inserts the appropriate conjunction(s) between them. Prince gives an example of this using the conjunctions *then* and *as a result*. An embedded component *A* is inserted entirely within component *B*. Alternating is where subcomponents interleave as in A_1, B_1, A_2, B_2.

It isn't profitable to discuss in detail, the rules themselves. More relevant to our enquiry are some of the observations Prince makes during this work.

Clues to a story's type can be gained by examining the relative distributions and concentrations of action events and state events because it reveals where the movement is and where the expository is. Likewise, the distribution patterns of episodes and events can reveal about a story, its pace and its rhythm. Stories with relatively many episodes unfold at a faster rate, and rhythm changes are devices for drawing readers' attention to specific parts of the text.

The degree of cohesiveness in a story has to do with the relative number of clusters there are, i.e. two or more conjoined events and one or more conjunctions. A highly cohesive story is one with a close-knit plot. Episodic plots are achieved by interspersing cohesive sections. Also, the style of a story can be gleaned by attending to the relative numbers of logical (e.g. *therefore* and *because*) to associational conjunctions (e.g. *however* and *though*) there are.

Oral stories rarely employ alternation or excessive embedding for the same reason that they are usually ordered chronologically; it makes them easier to follow. A complex story in which the component stories share events in common is more cohesive than one where they do not. Likewise, the more features (e.g. character, theme etc.) the component stories share, the more a complex story will cohere. On the other hand, a complex story where the components are either alternated or embedded will usually take longer to unfold than one in which the components are

just conjoined. There can of course be complex stories that use all three kinds of combination.

Prince's grammar although criticised by Ryan (1979) provides the basis for Ryan's own generative model which among other things, includes the rule that there must be an animate participant. Also, Ryan's model is said to be capable of generating complex stories by relaxing the rules that apply to simple stories rather than by imposing additional rules.

2.6.3.2 - The move grammar (Pavel,1985)

The difference between this grammar and the one suggested by Prince, is that by borrowing from game theory Pavel enables the plot to unfold according to strategy rather than logically. Also it is applied, not as is usually the case, to "ideal" plot structures but to more complex literary works. Even so, the syntax of the context-free component is the simplest seen so far. A story consists of one or more *Moves*, where each is triggered by a *Problem*, works towards a *Solution* and may involve an *Auxiliary*. Because of its simplicity, the base grammar requires very little explanation beyond what is provided in Figure 2.20 where the rules have been adapted slightly to ease reading.

Figure 2.20

Adaptation of Pavel's grammar (1985) with explanations added

Rule 1: Move → Problem + (Auxiliary) + Solution
    I.e. a Move is composed of a Problem, optional Auxiliary and a Solution

Rule 2: Problem → Move
    I.e. a Problem can be composed of an embedded Move

Rule 3: Auxiliary → Move
    I.e. an Auxiliary can be composed of an embedded Move

Rule 4: Solution → Move
    I.e. a Solution can be composed of an embedded Move

Rule 5: Problem → $Problem_1$ + $Problem_2$ + ... + $Problem_n$
    I.e. a Problem can be composed of a finite number of sub-problems

Rule 6: Auxiliary → $Auxiliary_1$ + $Auxiliary_2$ + ... + $Auxiliary_n$
    I.e. an Auxiliary can be composed of a finite number of sub-auxiliaries

Rule 7: Solution → $Solution_1$ + $Solution_2$ + ... + $Solution_n$
    I.e. a Solution can be composed of a finite number of sub-solutions

Rule 8: Solution → [± considered]   Bremond stages
         such that   for Solutions
         [+ considered] → [± attempted] and
         [+ attempted] → [± success]
    I.e. a Solution involves choice (Bremond); a positive consideration enables attempt; a positive attempt either succeeds or fails

Rule 9: Solution → $(Pro\text{-}Solution + Counter\text{-}Solution)^n$ + (Solution)
    I.e. a finite number of optional Pro– and Counter-solution pairs may precede a final Solution which will not execute if the Pro-solutions are weaker

Each *Move* is owned by a character or group and is initiated in response to the *Problem*. Those *Moves* initiated by the same character or group form a narrative domain. An *Auxiliary* is any character, group or circumstance that the owner of the *Move* uses to achieve the *Solution* to the *Problem*. Not every character action qualifies as a *Move*; to do so, it must be one that either ends the story, or at least indirectly, causes another *Move*. As usual, the rules representing a given narrative are

structured as a tree, where the first *Move* to execute is the one that is most deeply embedded and the last is the outermost *Move*. The leaf nodes carry the narrative propositions actually executed.

Various transformations are permitted in this grammar. The *Episode-Attachment Transformation* inserts an unconnected episode in the narrative tree. The *Solution-Generalisation Transformation* allows the last stage of the *Solution* (Rule 8)[3] within the highest *Move* to be generalised to the *Solutions* of lower *Moves*. The *In medias Res Transformation* projects a *Move* backwards from a later position to its logical position in the unfolding of a plot.

2.7 - Beyond the Grammar Models

As persistent as story grammars continue to be, they have come under criticism by those who have argued that they take no account of content (Black and Wilensky, 1979). The core of this argument is that if the objective is story understanding, then structure is actually irrelevant, since in order to judge whether a story is syntactically sound in the first place requires understanding of content. That is, there is no reason to believe that the structure of the story might aid understanding. While everything presented so far indicates that people have certain intuitions about the structure of stories, can one conclude therefore, that candidates having non-ideal structures must be classified as non-stories?

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[3] Pavel references two publications: Bremond [1966] and Bremond (1973).

In Section 2.6 the story models were divided according to whether they were goal directed, and also according to whether they took into account context. Up until now, all models have had two things in common: they have all demanded of a story, that it be in possession of necessary and/or sufficient features, and they have all assumed it to have, at least a rudimentary plot. As well as looking at some less rigid plot and feature models, this section will investigate other models that are quite different. We choose to classify them broadly as content models, point models and context models. The first category collects those models that identify stories predominantly by virtue of their structural features. Models of the third category place greater emphasis on discourse matters, namely, delivery and reception. Structural affects can refer to reader or listener responses (Brewer and Lichtenstein, 1982) but can just as well refer to the responses of the protagonists (Stein, 1982). This explains why certain structural affect models are categorised here as content models, because character behaviours are important, and others are categorised as context models, because reader and listener behaviours are important.

Some models, for example, some of the Point models, are concerned with both the story's content and its context, things internal and things external to the text. We take the view that this has been the main development of story models; they are mature enough that they no longer have meaning as some intrinsic, structurally ensured property but as a potential. In this section then, we will look at theories that gradually move us in this direction. In doing so, there may be slight departure from the order of the categories given in Table 2.6 and the lower third of Table 1, since it may be that models presented under one category may be more similar to models presented under another.

Table 2.6

Beyond Grammar Models within Story Research Domain

Beyond Grammar Models			
Model:	**LITERARY**	**CULTURAL**	**COGNITIVE**
Network			Black & Bower 1980 Trabasso Secco & van den Broek 1984
Feature	Forster, 1927		Stein 1982 Zwaan et al. 1995
Plot, Gist and Macrostructure	Brooks, 1984	van Dijk 1975	Kintsch 1977 Lehnert 1981/2 Schank 1990
Dual	Chatman 1975, 1978		
Points	Prince 1983 Vipond & Hunt 1984 Rigney 1992	Labov 1972 Polanyi 1979	Wilensky 1982/3 Dorfman & Brewer 1994/2004
Affect	Miall 1989	Gabriel 2000	Brewer & Lichtenstein 1982
Reader	Barthes [1970]		

2.7.1 - Content models

Every story model looked at so far comes under this category; the difference in the content models described in this section is that the rules are less strict, the dynamic is less forward, and the feature set is less fixed.

2.7.1.1 - Network models

According to Trabasso and Sperry (1985) and Trabasso and van den Broek (1985), story grammars on their own do not account for the selective recall of story events, in particular, why sub-goals can be more memorable than main goals. Neither can the story grammar explain the representation of story events in memory. Building on an existing model (Trabasso, Secco and van den Broek, 1984), they instead propose a

network theory in which recalled events correspond to those that are directly and multiply causally related. They define a causal relation as requiring a non-agent person or object (patient) to undergo state changes resulting from a motivated action or a physical mechanism's process (agent). This in turn requires that agent and patient are temporally and spatially contiguous.

Each node in the network corresponds directly to a unit statement, usually less than a sentence in length, in the story text and each directed arc connects a cause statement to a consequence statement. It transpires that subsequent statements have outputs to prior statements, indicating that they logically precede them. Not all statements have outputs; these are the dead ends. The causal chain is the longest chain through the network; it comprises all statements either directly or indirectly linked to the story's opening which sets the scene and closing, which in Trabasso and Sperry's example is the moral.

Black and Bower (1980) criticise grammar theories on several fronts. One is that they fail to distinguish between texts intuitively classified as stories and those that are not; another is the separation of setting and plot. Their theory, this time based on a causal chain theory proposed by Schank (1975) emphasises the state transitions in a causal chain of events. A hierarchical state transition model would explain how events towards the top of the hierarchy and on the critical path to the main goal, are most readily recalled. The model also allows expository parts to link to the relevant state changes within the story. Importantly, there is no question that the story could be anything other than goal directed. Characters and readers alike are engaged in a planning and problem solving process. The role of the reader is to identify with a

particular protagonist, to compensate for states that are only implicit, and to follow the critical path.

2.7.1.2 - Prototypical features

Stein (1982) in offering a prototype model based on a model of natural categories Rosch and Mervis (1975) did so whilst retaining her commitment to the story grammar. It was rather, an acknowledgement that there could never be a single definitive model; that it was not possible, not even now desirable, to draw a line between the story and the non-story. More likely it is that judgement as to category fit depends on the context in which the judgement is made, although what actually constitutes context is rather vague. The idea is that there is a prototype comprising the universe of story features, and in context *A*, the prototype highlights feature set *X* and in context *B*, it highlights feature set *Y*. The potential story can then align its features with those highlighted in the prototype and will achieve a relative goodness of fit.

Stories resemble one another in their 'accidentals' too. These accidentals are the stuff of models comprising a 'reservoir' of models built up by previous tellers that people can draw upon in their attempts to make sense of events. The composition and telling of a single story typically involves a variety of models on many levels: narration, story, plot, and action. Some models are relatively wide in their applicability, some more narrow; some travel well, others do not. Most importantly, continual replenishment means that stories that did not resemble one another yesterday might today and vice-versa.

2.7.1.3 - Plot units

In direct response to prevailing story grammars, Lehnert 1981 and 1982 developed a theory of plot units. Lehnert's principle criticism was that story grammars can never be general enough to cope with the wide variation in plot structures. Structure in this model is not pre-given; it is the characters' affective states, albeit rather simplified, that build it. There are three of them: positive event, negative event, and neutral mental state. Affect-states link causally in one of four ways: motivation, actualization, termination, and equivalence, but there are constraints. For example, it is not permissible for an event to motivate another event but it is permissible for an event to motivate a mental state. It is also permissible for a mental state to bring about an event by intention, i.e. actualize. Termination allows one affect-state to replace another, and equivalence allows two events or two mental states to have multiple links, i.e. multiple perspectives. In all, there are fifteen legal pairings and these are the primitive plot units. Various configurations of these provide complex plot units representing complex and even figurative concepts such as 'success born of adversity' and 'killing two birds'.

2.7.1.4 - Situation model

Like Lehnert, Zwaan et al. (1995) are interested in how readers construct representations of the situations described in simple narratives. They propose a situation model where events and intentional actions provide the focal points. The reader monitors and updates the situation model whenever they comprehend a focal point. The situation model has five indices:

Temporality, Spatiality, Protagonist, Causality and Intention

2.7.1.5 - Aspect model

Forster writing in 1927 was just as concerned with the reader, in this case the reader of novels. We might have located it under *reader* models in our map, Tables 2.1 and 2.6 above, for the reason that he regarded the novel as aspectual and would consider each aspect by concentrating on the demands it made on the reader. However, it is the aspects that are drawn out for discussion; for simplicity therefore, we refer to these as features and locate it as such.

The novel had a number of aspects, only a few of which were considered essential. One essential was the story which as well as being a sequence of chronological events was the repository of voice, also essential. It was through a story's voice that readers would transform into listeners, the most primitive form of audience. The only other essential aspect was characters. These could be flat, partially round, intermittently round or round depending on the degree to which the novelist portrayed their psychological side. There were in addition several inessential aspects, all of which would improve the basic model. The first of these was plot or at least fragments of a plot. The plot made explicit cause and effect, and in a higher form provided mystery too. Unlike the basic story then, that just required curiosity of its audience, plot demanded intelligence and memory in addition. Another aspect enabled by the plot was a fantasy-prophesy axis where again some and not all novels would tend to either pole. An aesthetic aspect, variously called rhythm and pattern, completed the set of inessentials; this like fantasy and prophesy Forster described as springing from the plot. The model then appears to comprise mainly a story that involves characters and a narrator observing them from a particular point of view, be it impartial, partial, omniscient or first-person. Springing forth from the story might be whole or partial

plots and springing forth from these might be fantasy or prophesy and rhythm or pattern.

2.7.1.6 - Indexing model

It is not the story itself that is memorised but the story's gist according to Schank (1990). The indexing model suggested has the gist as comprising a goal, plan, and result, accessed via a two-part index. There are essentially two kinds of story: lesson and observation with the latter as the most general. There are then, two different indexing schemes:

Lesson scheme: Theme → Lesson   → Story (Goal, Plan, Result)

Observation scheme: Topic   → Observation → Story (Goal, Plan, Result)

Schank's reasoning is as follows: "[B]efore you can find a good story to tell, you need to know the nature of the conversation and the ideas you have to contribute. The story is simply what happened – the goals and plans and results. The index is what surrounds the story – what reminds you of the story and what you want to add to it. Thus the index has two parts. Something said in conversation brings an observation to mind. The observation is the index to the story itself whereas the topic [in conversation] is the index to the observation."

2.7.1.7 - Action and interest theories

Following from the findings of Labov and Waltetzky (1966) that the stories of the everyday have a common structure, van Dijk (1975) writing in New Literary History, made a distinction between artificial (literary) and natural (discourse) narratives.

He offered a theory of action and action description which was lacking in current theories of narrative and although it applied to both artificial and natural kinds, this section will be mostly concerned with the artificial, and his discussion of the natural kind will be picked up in Section 2.7.2.2 below. In the first place, he defined action as an intentional and purposeful state change, where state change was a simple or complex event. Inaction too could qualify as action if it is intentional and purposeful; thus, the agent choosing not to act in a given situation alters the subsequent course of events from what they would otherwise be had action been chosen. If the purposes of agents are compatible, they are protagonists or helpers; antagonists have incompatible purposes. Patients are those characters that lack agency.

Actions can either be macro (plans) or micro (auxiliary). The consequences of an action may be many, with the immediate consequence not necessarily being the significant one. Here, however, subjectivity is acknowledged, and so too is the uncertainty on the margin of intentionality and accident. The sentence is too short for deciding such matters; it requires the whole action discourse. Given the whole action discourse, however, the uncertainty is resolved.

Artificial narratives differ from natural narratives in that they permit third-person attribution of mental events and states; it is what makes them in some sense complete. Natural narratives on the other hand, when narrating third-person actions appear

incomplete, precisely because these attributions are missing. In the same way, detail regarded as irrelevant to natural narratives is necessary to artificial narrative where it functions as atmosphere inducing, climax building and so on. Here, van Dijk offers four conditions that either singly or jointly produce artificial narratives that are interesting or remarkable (unusual) and thus fulfil an emotional function.

(1) The actions performed are difficult.

(2) The initial situation of an action sequence is a predicament.

(3) Unexpected events may cause the agent to change purpose and avoid predicament

(4) One of the states or events are unusual or strange for the agent.

The macrostructures of artificial and natural narratives differ in that in the former, the rules are highly recursive, as demonstrated in Figure 2.21, the order of the categories is not fixed and, as Figure 2.22 suggests, certain categories may be implicit. The microstructure differs in the following respects:

(1) Descriptive detail can be redundant or at least relevant only indirectly.

(2) Narration can be second or third-person with access to mental states of characters.

(3) Description of complications leading to predicaments is systematic and evocative.

(4) Complications and resolutions are partially removable to arouse suspense.

Figure 2.21

The complication-resolution chain of a recursive macrostructure, taken from van Dijk, 1975

Exposition

↓

Initial complication

↓

Resolution (positive or negative)

↓

New complication

↓

Final resolution
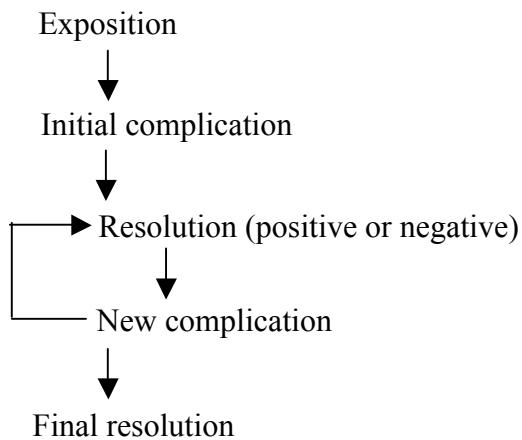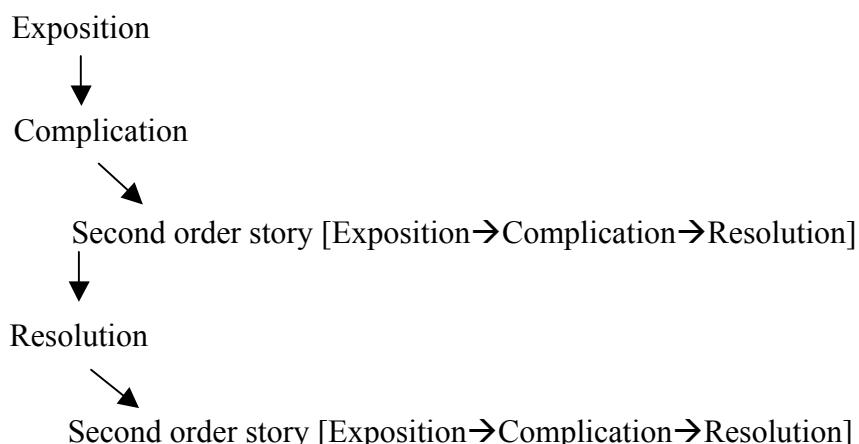
Figure 2.22

The complex macrostructure has second order stories in one or more macrocategories, taken from van Dijk, 1975

Exposition

↓

Complication

↘

Second order story [Exposition→Complication→Resolution]

↓

Resolution

↘

Second order story [Exposition→Complication→Resolution]

2.7.1.8 - The Macrostructure of stories

The development of the theory of macrostructure owes much to the collaboration between van Dijk and Kintsch. According to Kintsch (1977) who is concerned with discourse comprehension generally, the story provides a testing ground for aspects of the theory because it has the most readily identifiable structure. There are deviations, but these only serve to highlight the canonical structure which can however, vary in its looseness, and this affects comprehension; loosely structured stories prove more difficult than tightly structured ones. Regardless, the structure given by Kintsch is identical to the one described above (van Dijk, 1975). Macrostructure construction occurs during and not after the reading process. It involves four kinds of operation:

(1) Irrelevancy (deletion of)

(2) Redundancy (deletion of)

(3) Generalisation (replacing a subordinate category with a superordinate one)

(4) Summarization (replacing a sequence of actions or events by a name)

What is perhaps most interesting about this model is its accommodation of perspective changes by the use of frames. These also reinforce the narrative structure. A frame provides the context for a sequence of events and actions, and each time a new perspective is required, it calls for a new frame to replace, though not entirely, the previous frame.

2.7.1.9 - Story and Discourse model

Of the models looked at so far, the one proposed by Chatman (1975, 1978) most emphasises the Structuralist division of story on the one hand and discourse on the

other. The story consists of the *events*, *characters* and *setting* (the what); the discourse consists on the one hand, the *statements* actually transmitted and on the other, the *medium* of presentation (the how). This dual aspect view of the discourse plane is what differentiates it most from the Russian Formalist view in which the only acknowledgment of discourse is a distinction between story material (fabula) and the physical arrangement of that material, the plot (sjužet).

Chatman is discussed here rather than alongside some of his contemporaries in Section 2.5 because his theory of narrative is what he calls 'open structuralist'; among other things it encourages what he calls 'reading out' which basically means accessing the deeper levels of narrative and not being confined to the surface. Also his theory is unusual in that it does not insist, only prefers, the plot being a causal chains of events; otherwise it would exclude many modern works on the basis that they consist mainly of inessential (satellite) events rather than logically ordered essential (kernel) events, characteristic of classical narratives.

Chatman provides a comprehensive structure diagram of narrative. In the first publication (1975), it consists of a story part (content) on one side and a discourse part (expression) on the other. The content side shows the *existents* (characters and setting) and *events*. Events have both hierarchy and type: satellites are subordinate to kernels and both can be actions or happenings. The expression side shows two kinds of statement: *process* statements and *stasis* statements.

The two sides of the diagram are joined by arrows of communication pointing away from the expression side and into the content side. *Overt* communication arrows show how process statements narrate events and how stasis statements describe

existents. *Implied* communication arrows show how process statements *index* existents and how stasis *project* events. Within the content side, further implied communication arrows show the construction of plot from an event chain and the incorporation of characters and setting.

The theory also distinguishes *mediated* and *unmediated* transmission, i.e. the presence or absence of a narrator-narratee pair. An unmediated transmission of an event is an *enactment* and a mediated transmission of an event is a *recounting*; an unmediated transmission of an existent is to *expose* it, and a mediated transmission of an existent is to *present* or identify it.

The manifestation part of discourse is included in the diagram on the relevant side but is otherwise quite separate from expression. Although in the second publication (1978), Chatman acknowledges that the manifestation of the narrative will naturally influence the expression, it is not included at all in the structure diagram.
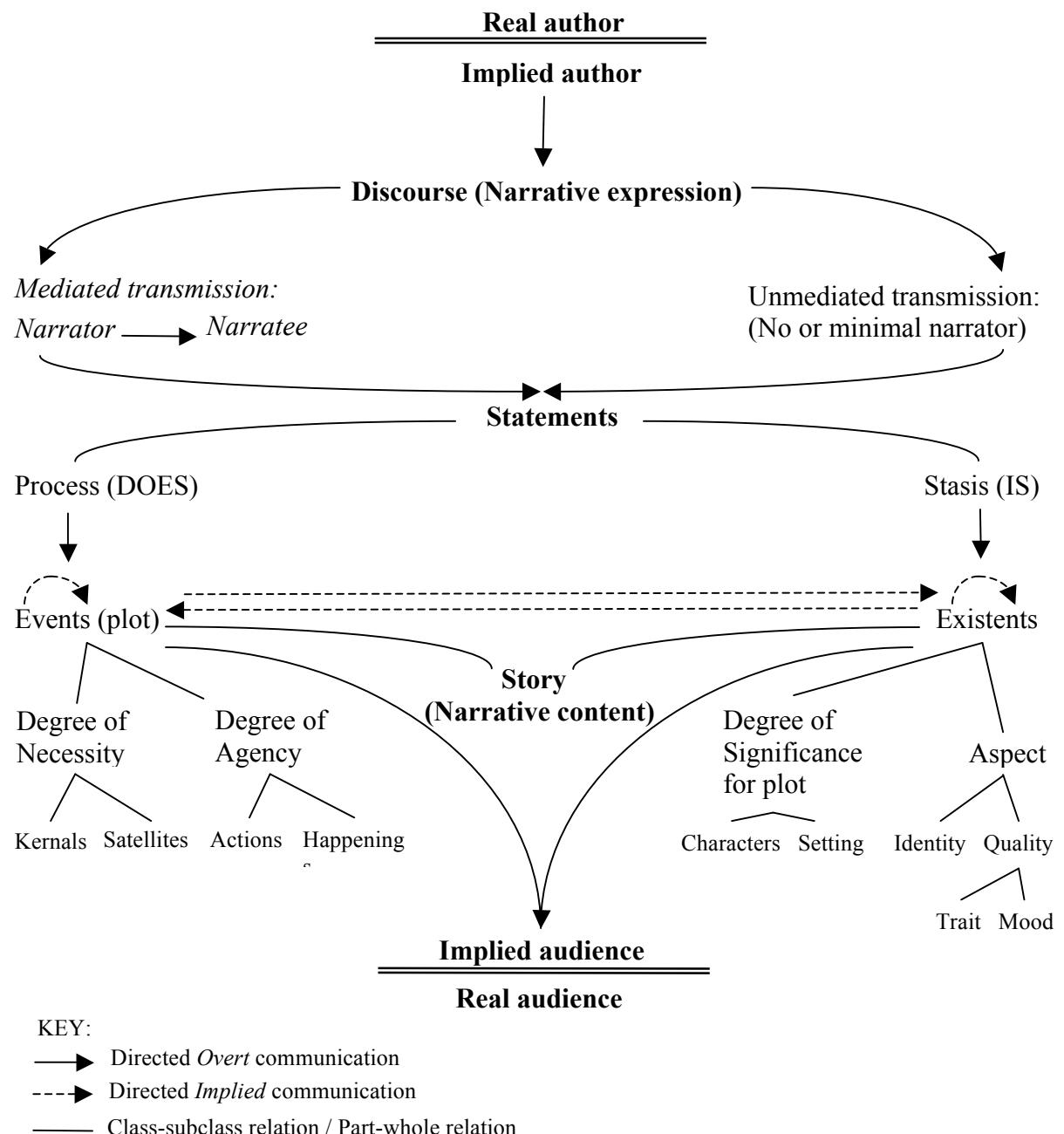
This later diagram which is shown with slight modification in Figure 2.23 below expands the model but also simplifies. In particular, the arrows of inference that join the two narrative planes now just show that existents can be inferred by events and vice versa. For the events, choice of kernel or satellite is shown as being determined by the degree of *necessity* to the plot; likewise, choice of action or happening is determined by the degree of *agency*. For the existents, choices will depend on the degree of *significance* for the plot: a relatively insignificant character will merely be incorporated in the setting. Characters now are *aspectual*, they have identity but they may also have qualities, namely trait and mood. Finally, the real author and audience are shown as outside the narrative communication although ultimately responsible for

it. The implied author and reader are shown within the narrative communication regardless of whether they are explicit in the text. The narrator-narratee pair is only optionally present.

Figure 2.23

Open structure model with slight modification, taken from Chatman (1978)

Real author

Implied author

Discourse (Narrative expression)

Mediated transmission:

Narrator ⟶ *Narratee*

Unmediated transmission:
(No or minimal narrator)

Statements

Process (DOES)

Stasis (IS)

Events (plot)

Existents

**Story
(Narrative content)**

Degree of
Necessity

Degree of
Agency

Degree of
Significance
for plot

Aspect

Kernals   Satellites   Actions   Happenings

Characters   Setting   Identity   Quality

Trait   Mood

Implied audience

Real audience

KEY:

⟶ Directed *Overt* communication

--▸ Directed *Implied* communication

⎯⎯ Class-subclass relation / Part-whole relation

2.7.2 - Point models

Partly because few theories define it adequately, there is as much variety in the point models as there are in the content models. The point may be internal, external or both, depending on the particular theory chosen.

2.7.2.1 - Point as raison d'être

Following earlier work (Labov and Waletzky, 1966) Labov (1972) observes once again that vernacular personal experience stories have essentially, a logical ordering of events with a beginning, middle and end. A fully developed narrative of this type consists of:

1. Abstract – summary

2. Orientation – setting

3. Complicating action – event sequence

4. Evaluation – raison d'être

5. Result or resolution – termination of the complicating action

6. Coda – signal that the narrative is finished

This is very similar to, and just extends the collaborative model that was discussed under syntagmatic grammatical models in Section 2.5.1.5. The reason why the later model is located under point models in Tables 2.1 and 2.6 above owes to the first and fourth components. The most important, in addition to the complicating action, suggests Labov, is the reason for telling, which in the fully developed narrative, also appears in the abstract.

"There are many ways to tell the same story, to make very different points, or to make no point at all. Pointless stories are met (in English) with the withering rejoinder, 'so what?'". Stories with commonplace points are likewise, met in this way; what makes a story reportable is a highly unusual point.

There are four evaluation devices, these are:

1. Intensifier – intensifying an event relevant to the main point

2. Comparator – comparing an event that occurred with one that did not occur

3. Correlative – superimposing one event upon another

4. Explicative – explicating the point in so many words

The ability to evaluate comes gradually. It is most prevalent in the stories of adults and least in the stories of pre-adolescents; age regardless, the most often used devices are comparators and intensifiers.

There are four types of evaluation:

1. External

2. Embedded

3. Action

4. Suspension

If an evaluation is external, the narrator will stop before reaching the end of the story to make the point and then return. Embedded evaluation, conversely, is where the narrator makes the point without interrupting the flow of the story.

The third type of evaluation is where the narrator describes the actions of characters rather than what they say. A temporary suspension of the action for the expression of emotion without action has the effect of giving significance to a particular section of the story.

2.7.2.2 - Point as optional

Whereas, the evaluation component in Labov's theory is essential, for van Dijk (1975) it is optional. According to the theory, natural narratives have a number of practical functions that go beyond changing the knowledge of the hearer; they can for example, advise, incite and warn in addition.

The macrostructure of a natural narrative consists of a sequence of three mandatory macrocategories:

> Exposition (setting)
>
> Complication
>
> Resolution

plus two optional terminating categories:

> Evaluation (attitude of narrating agent)
>
> Moral (lesson)

The optional categories are present in parables and other stories that have a pragmatic function.

2.7.2.3 - Point as moral

Although Dorfman and Brewer (1994) are only concerned with artificial narratives, like van Dijk (1975) they have a very narrow conception of point, which they equate with a story's moral. Their research was concerned with finding readers' comprehension of such points within fables, a story type where they feature explicitly. Their method of experiment was to take a traditional fable and to manipulate the content in various ways, to give four categories and eight alternatives:

(1) Base fable   (positive action → positive outcome)

                     (negative action → negative outcome)

(2) Reversed-outcome (positive action → negative outcome)

                     (negative action → positive outcome)

(3) Neutral-action   (neutral action → positive outcome)

                     (neutral action → negative outcome)

(4) Neutral-outcome   (positive action → neutral outcome)

                     (negative action → neutral outcome)

Participants in their experiment had to indicate whether the story had a point, and if so, what it was. They also had to rate five aspects:

(1) clarity of the story

(2) typicality of the fable story type

(3) liking for the story

(4) fairness of the outcome of the story

(5) agreement on point of the story

In answer to the question as to whether the story had a point, the base fable scored highest with 95.8 percent. Of surprise to the authors was that 41.7% identified point in the reversed-outcome fable. Although they do not say so, it rather suggests that readers will try to identify point in stories that have non-neutral actions and non-neutral outcomes, whether or not they regard the action as 'moral'. However, readers still managed to find point in neutral-action and neutral-outcome stories, the scores being 6.7 and 15.0 percent respectively. The lowest of these scores is consistent with the low typicality rating for the neutral-action fable. Although again they do not discuss it, the higher score might be because readers in judging the story to be typical of a kind impose the schema for that kind and, thus even possibly supply their own point. The authors are more intent on showing that the high scores are evidence of point comprehension. One may question why they choose the fable, well known as didactic, to test their hypothesis. At the same time, because their conception of point is so narrow, they have only two models of comprehension: outcome-based and just-world. The first of these requires the reader to infer from the outcome whether the action was consistent with the author's moral values and beliefs; the second requires readers to consult their own moral values and beliefs. The reason why the reversed-outcome fable was so high scoring, they reason, is that readers were able to use the outcome-based model in place of the just-world one.

The paper marks a significant shift from Brewer and Lichtenstein's structural-affect theory (1982), where story status is awarded only to those texts that give pleasure. As is evident by Dorfman and Brewer (in preparation), that shift has been maintained.

2.7.2.4 - Point as distinct from message

We turn now to a broader conception of point that suggests an alternative perspective within narratology, where traditionally, the focus has been on plot structure. In that discipline the story refers to anything narrated and is distinct from narration. To understand a narrative is to be able to summarise or paraphrase, but beyond that, it requires one to be able to articulate the basic meaning(s) it develops. This is the area of narrative pragmatics (context), where according to Prince (1983), all narrative semiosis not otherwise accounted for by syntax or semantics is covered. The particular concern of this paper is narrative *message* and narrative *point*. These he gets from Labov's (1972) concept of *evaluation*, which did not explicitly make the distinction. The *message* may be received differently, whether by different people or by the same person at different times. The *point* may be judged differently, whether by different people or by the same person at different times. The first question then, is how the message can vary from person to person and from time to time; the second question is how the point attains relevancy from person to person and from time to time.

To understand the message conveyed by a story requires the amalgamation of two sources of data. The receiver must contrastively study the various narrative features: the characters' actions and goals, and the causes of situations. At the same time, they must recognise the various evaluative devices in the commentary. However, this amalgamation is performed context dependently:

"…to some extent at least, [the receiver] make[s] the text [they] interpret […] [G]iven any narrative, the text of its reception always includes the context of its reception […]

the receiver partly determines not only what aspects of the text to focus on […] but also the very nature of that text."

The relevance of the narrative i.e. its point, also depends on context. A proposition *P* is relevant in context *C* if and only if their union (*P* and *C*) logically and non-trivially implies another proposition *Q*, within a given processing effort. In other words, if the proposition is not pertinent to the context, the receiver may choose to dismiss it as pointless or they may choose to transform e.g. extend the context so that it will accommodate, and give relevance to the proposition.

Dorfman and Brewer's readers, it may be speculated, were doing something of the kind when they identified point in fables even though actions and outcomes had been subject to manipulation.

2.7.2.5 - Point as variable

Polanyi (1979) has argued the case that story structures are culturally dependent. Cultures that have the English language in common tend to organise stories temporally from the most distant event to the most recent one, deviating from this pattern only superficially. Other cultures reverse the order. Then again, some cultures organise events non-temporally. Another argument made is that the concept of event as being the main organisational unit is not universal. Instead, Polanyi suggests the story point, which too is culturally dependent. Stories that qualify as such only do so by their being accepted by their intended audience, so what passes for story in one culture or subculture will not pass in another. The difference between

Polanyi's point theory of stories and Wilensky's, discussed next, is that for Polanyi the story is a process not product; the teller will take cues from the audience and will change the point if those cues suggest that it is unacceptable. Ultimately, the very notion of story and storyteller depends on delivering the right point on the right occasion.

2.7.2.6 - Point as internal and external

For Wilensky (1982, 1983), what separates the story from the non-story is the 'so what?' factor. A difference in the detail between Wilensky's research and that of Polanyi and Labov previously discussed is that the stories Wilenksy considers are written rather than verbal texts. His specific argument is that story understanding has little to do with text understanding. That is, a logical ordering of events does not of itself, guarantee story. A successful sentence is a coherent one; a successful story is a poignant one in addition. However, Wilensky's points, unlike Polanyi's have definite structure. The function of the point is two-fold. In the first place, it marks a significant episode, collecting under it all the detail of that episode; secondly, it gives the reader something to look for in the text, generating in the reader, interest and expectation about what will come next. The first of these has to do with story recall. Like Bartlett, Wilensky's theory is that detail if at all recoverable is via the episode, and that the most immediate recall is the salient episode.
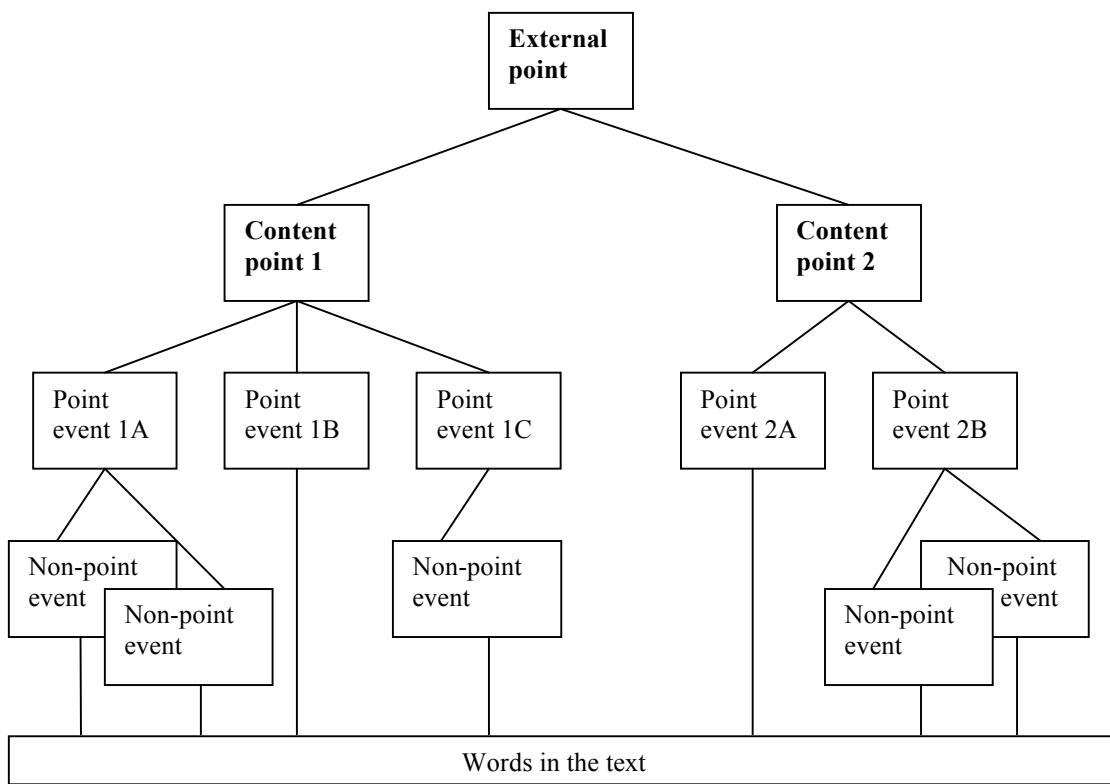
There are, according to the theory, two kinds of points: external and internal. The external point corresponds to the reason for telling the story and the internal point

corresponds to a part of the content that generates interest. Often, a content point has to do with a human dramatic situation involving character, problem, and solution.

Figure 2.24 below shows the point structure. It shows exactly one external point and potentially many content points. The uppermost content points are shown to directly trigger memorable events, which in turn may trigger less memorable ones. The words on the page at the bottom of the diagram are the least likely objects to be recalled.

Figure 2.24

Representation of Point Structure as described by Wilensky (1982,1983)

2.7.2.7 - Point as author's imputed motive

What has been presented so far regarding point theories of stories suggests two things: they refer to the story's structure and they refer to natural rather than artificial stories. Vipond and Hunt (1984) have quite another view, it is that stories of a literary kind have point; it is just a matter of approach. One can choose to obtain information (information-driven), follow the plot (story-driven), or get at the point (point-driven). The vital difference between their theory and the others previously discussed is that the point is nowhere present in stories of a literary nature, nor is it derivable from context, which is of course missing. The reader must infer it by imputing motive to the author.

Although they allow that there is not a superior or correct way to read a text, they can nonetheless be rather scathing about story-driven reading which is doomed to fail for stories without an evident plot. This is the first time in this enquiry we have encountered the possibility, or as Brooks (1984) would regard the impossibility, of there being such a thing. In relation to this, Vipond and Hunt also claim that the point-driven reader, far from discarding incidentals from memory, as the story-driven reader would do, will retain them. These incidentals make point construction possible in the absence of context.

The main thing to be learned from Vipond and Hunt's theory is that whatever point is, it is not a summarised plot. This is very important for we see that plot in the way it has been regarded up until now, is as being a structural component, whereas now we see point as not only transcendental to structure, but to content too. It is something that the reader constructs. This then, marks the difference between point

and what might be mistaken for point. For example (Schank 1990), theorises about gist and captioning, whereby a prior object is extrapolated from, elaborated upon, or reduced to. These are closer to theories of plot than of point. On the other hand, some earlier work by Schank et al. (1982) gets very close to what we now can begin to regard as point; it is absent from our map of story models in Table 2.1 for the reason that it is not applicable to stories but to conversation comprehension. What is interesting and worth reproducing here are their suggested seven categories of point that enable a listener to comprehend not merely what is said but why it is said, and thus respond in an appropriate way.

(1) **Affective:** where the speaker addresses an interest of the listener or an interest of someone towards whom the listener has emotional feelings.

(2) **Empathetic:** where the speaker addresses the listener's ability to imagine themself in the speaker's position.

(3) **Need:** where the speaker makes an indirect request for assistance.

(4) **Explanatory:** where the speaker supplies a cause or reason for a fact known but not understood by the listener.

(5) **Prescriptive:** where the speaker supplies a rule in place of lengthy or complex explanation.

(6) **Argument:** where the speaker supplies evidence for the correctness of a position and/or the incorrectness of an opposing position.

(7) **Interest:** where the speaker implicitly assumes that the listener has similar interest and knowledge.

2.7.2.8 - Point as a 'making intelligible' for a particular purpose

Rigney (1992) who in acknowledgment of and in response to the 'narrative turn' argues that a more accommodating theory of narrative is required, and suggests one that concentrates on its function. Fundamentally, this is to communicate. Recall that Gabriel was able to separate the story from the report by noticing in the latter that they were somehow lacking; here Rigney identifies that lack as point. "Seen from this perspective, narrative does not merely involve the representation of real or imagined events; it is also – indeed, it is in the first instance – a 'making intelligible' or *poynctyng* (sic) of those events for a particular purpose." Narrative analysis would properly begin with the communicative function of narrative, not the events represented. She gives by way of example, three functional stories: one each from ancient Greek and modern American politics and one from British law. The first story is obviously fictional, the second is a more-or-less fictional account, represented as fact, and the third is a reconstruction of selected facts. Like Denning's applied 'springboard' model (2001) which we discuss in Chapter 3, the function of all three stories is to persuade by way of illustration but they do this in different ways. In each of the political examples, one story, the metaphor is a carrier for another story, the

point. In the legal example, an outer story makes intelligible, via various pointing devices, an inner story.

Rigney's cognitive models theory is very similar to that of Schank (1990) in that a narrative culture enables people to call upon, select from, and invoke story types in order to interpret experiences and situations as stories. The functional story can assist in this process.

2.7.3 - Context models

This last category can be thought of as being a gradual transition from the content models which, it will be recalled, began by looking at a network model ultimately rooted in story grammar theories and the obvious extension from its immediately prior causal chain model (Trabasso, Stein and Johnson, 1981). There was a fairly rapid progression to point models and to theories that were concerned with other things besides structure, i.e. matters of discourse. Most of the theories looked at in this section are less concerned with stories per se and more concerned with readers' appreciation of them.

2.7.3.1 - Structural affects model

The difference between Brewer and Lichtenstein's (1982) theory and most others looked at so far, is that for them, story and narrative are not the same. Like Gabriel, they regard narrative as class of which story is just one member. Other members include all those narrative kinds that do not have as their overall purpose (discourse

force), entertainment, and so perhaps their conception of story is narrower than Gabriel's.

In developing their Structural-Affect theory of stories, Brewer and Lichtenstein suggest that narrative research should distinguish between plan comprehension, narrative comprehension, and story schema. On this view, plan comprehension covers goal-directed story grammar theories, and narrative comprehension covers research concerning event sequence. Notice, that in story grammar terms, story schema is here regarded as being the surface structure while plan comprehension operates on the deeper semantic structure and narrative comprehension concerns the transformations between these two.

Bearing in mind that narratives often do not have just one force, the three areas of research are each applicable to three types of discourse: information, persuasion and entertainment. A story is defined as being any narrative where entertainment provides the greatest discourse force. Story research then should properly concern itself with how stories are enjoyed not with how they are understood.

A Structural-affect theory of stories is only concerned with readers' responses, not those of characters. There are according to the theory, three major discourse structures which make a story enjoyable: surprise, suspense and curiosity.

Reader surprise (nonlinear) discourse structure:

  mediating event → outcome event → early event

Reader suspense discourse structure:

   initiating event → delay → outcome event

Reader curiosity discourse structure:

   partial knowledge → delay → full knowledge

Although the authors find that readers' enjoyment is greater if they experience surprise, suspense or curiosity, and that enjoyment increases if the surprise, suspense or curiosity is resolved in addition, they do not make clear whether story intuitions depend on these discourse structures.

2.7.3.2 - The writerly text

One of the first models looked at in this enquiry was Barthes [1966], which has variously been attributed as being the foundation of narratology. It is fitting to end this section and this investigation with a theory of the narrative text coming just four years later but which is evidently post-structuralist. Where previously the focus had been the unit of narrative, it is here the unit of reading.

Barthes [1970] proposes that the reader does not merely follow a text but constructs it too, and that construction involves exploration of the various dimensions of the text including and aside from the plot. The model imposes no beginning, end or order on the reading process, but offers instead a typology of reading unit (lexia):

Hermeneutic HER (Hermeneutic Code, Voice of Truth)

"[All] the units whose function it is to articulate in various ways a question, its response, and the variety of chance events which can either formulate the question or delay its answer; or even, constitute an enigma and lead to its solution."

Semantic SEM (Semes or Connotative Signifieds, Voice of the Person)

"Although every unit we mention here will be a signifier, this one is of a very special type: it is the signifier par excellence because of its connotation, in the usual meaning of the term."

Symbolic SYM (The Symbolic Field)

"Thus, on the symbolic level, an immense province appears, the province of the antithesis, of which this forms the first unit…"

Proairetic ACT (Code of Actions, Voice of Empirics)

"In Aristotelian terms, in which praxis is linked to proairesis, or the ability rationally to determine the result of an action, […] (in narrative, however, the discourse rather than the characters, determines the action)."

Reference REF (Cultural or Referential Code, Voice of Science)

"…they afford the discourse a basis in scientific or moral authority,…"

Not all texts have the same potential for construction, neither is every reader inclined to construct. Either way, a readerly text is one that is more or less followed, consumed; a writerly text just refers to a process whereby a reader will interpret a

physical text by virtually writing rather than either rewriting or reading it. The readerly and the writerly bear a certain similarity to, but are not the same as closed and open texts respectively (Eco, 1979). According to this terminology, texts whose interpretational scope is limited, have more formulaic, predictable structure, and are thus relatively closed. Open texts then will tend to offer plurality of meaning. The text under Barthes' analysis is in this case, more readerly than writerly (Balzac's Sarrasine) but it is certainly not closed. His theory is compatible with the argument of Vipond and Hunt (1984), that plot-driven reading is appropriate though not the only way to approach the classical text but that the modern text inevitably requires for its appreciation a less passive approach. Brooks (1984) always insistent on the necessity of plot, allows it to be constructed by the reader, even if this means delaying construction until the end of the text where at last, sense is made of the beginning and middle. It depends however on the model under discussion and in the case of Barthes', Brooks suggests that the closest approximation of plot is carried by two irreversible codes: the forward oriented proairetic (action) and the backward oriented hermeneutic (enigma) codes.

These later theories that allow indeterminacy in both the text and readers' responses to it call for more complex models, more complex than those reviewed in this chapter. Miall (1989) for example suggests one that amalgamates point and grammar theories with the writerly text. The reader constructs the schema according to affects which rather than being evoked by the text or contained within it are the reader's prior values and beliefs. These may change as a result of reading so that any subsequent reading will involve reconstruction of the schema.

2.8 - Concluding discussion

Our objective in this chapter has been to discover what makes stories distinctive from other forms of discourse. As a first step, we needed to obtain a definition of story just in order to discuss this particular discourse form. With this aim a variety of story models were looked at to see how story researchers, past and contemporary, have defined it and their reasons. In the beginning it was necessary to disambiguate plot, story and narrative. Later a fourth pragmatic component was encountered. The high variation in story models has to do with the fact that different areas of research tend to focus on a particular level of analysis and perhaps movement between one level and another. Usually but not exclusively, cognitive models tend to be plot models; concern is with identifying necessary and/or sufficient features and their logical sequence, although some try also to account for manifestations that differ. Literary models tend to focus more on the narrative level, explaining it in terms of its regularities and irregularities; here, there is no question that the plot and the manifestation levels will differ. Some literary models also incorporate a pragmatic layer, a layer that is most usually the focus of cultural story research where the primary interest is the transmission of stories which also tends to be oral.

In cataloguing the story models the second concern was to find one that could be used as a tool in our own research: to identify stories in a discursive forum such as online discussion, to identify their boundaries and thus be able to abstract them. This task is undertaken in Chapter 4 using the model suggested by Gabriel (2000). There are two reasons why this model was chosen. Firstly, it is contemporary and was developed by the analysis of natural stories told by people in cultural organisations, a data pool

not vastly different from ours. Secondly, we believe judgements regarding the presence or absence of features is a quick and easy method of identification.

We are however mindful that the in situ story and the abstracted story will not be the same, and so for us, there is an added concern of somehow restoring context. This investigation of story models has led beyond feature and plot models to those with a pragmatic component and it is these that can inform such restoration. Indeed in Chapter 5, we propose an annotation schema for stories that includes contextual dimensions. Though mostly inspired by our review of the literature here, this annotation schema has also been informed by our review of the literature in Chapter 3. If as in our case, the purpose of the schema is to assist the creation, recall, comprehension and telling of stories, then it is very important that the schema itself should not be an obstacle. Our aim was a schema that will support stories and only stories but places no restrictions on either content or context. It will be seen that the result is a hybrid which includes aspects of point models, feature models and affect models.

Chapter 3

Recent theories and implementations examined in a story-making context

3.1 - Introduction

One of the aims of this chapter is to discover how narrative and technology have been conceived to date. In the Chapter 2 we saw that Structuralism, the dominant theory in story research has very many divisions within it. One thing they all agree on is that narrative has a common, basic structure. They may disagree on what that common structure is, whether transformations can be said to alter it, the relative importance of other narrative aspects and whether they are separable from it. The reason for not venturing much beyond the structuralist argument despite our acknowledgment of its weaknesses is that we are principally concerned with two things:

(1) to identify and extract previous narrations from discourse

(2) to suggest a schema for the markup of previous, present and even future narrations.

If moreover, no assumptions are made regarding teller, audience, topic or style, both the extraction model and the markup model must have universal fit.

Before we do this, however, we shall make a short diversion and look at narrative in the broadest sense of the term and in particular, existing support for narrative on the web. We do this mainly to provide a context for the models we shall be looking at as it will enable the reader to visualise them in operation, given the rise in popularity of the narrative medium and the parallel drive towards a more socialised web.

3.1.1 - Existing support for narrative on the web

In Chapter 4 we describe our first study (Study 1) which, addressing point 1 above, concerns the identification of narrative structures in the postings to a discussion group forum. Based on email management systems technology, we chose it for our study because as a well established technology it is as familiar to internet users as the email list. The difference between the discussion list and the more basic email list is directional configuration: whereas the email list is one-way, allowing the server to make announcements to all clients on the list, the discussion list is two-way, allowing individual clients to communicate with the server which announces them, thereby giving the other clients an opportunity to reply. Our study was facilitated by other architectural features of the discussion forum: the discussion thread and the postings archive.

The web log, commonly known as the blog, is a web site which includes a commentary either by just the owner of the site or by visitors too. Some blogs and some discussion groups are single topic, others are more diverse. In this respect, the blog and the discussion group are functionally similar. They are similar in their structure too: archives are more often ordered chronologically rather than by subject. The main difference seems to be style: blogs, particularly personal blogs, tend to have diarist or narrative qualities. There are numerous health related blogs on the web but some are more permanent than others. The world's first medical humanities blog (Day and Alexander, 2006) is one that is very well established and the strong narrative element is reflected in its postings.

The discussion group and the blog at least lend themselves to storytelling but there are on the web, dedicated storytelling sites. The Society for Storytelling for example, focuses on oral storytelling and visitors to the society's website can, among the many resources offered, search for just the right story to suit a particular occasion or purpose. The Society was founded on certain principles which the site reflects: to be as open as possible, to act as a network, to supply information, to give advice and to not recommend individuals. Again, one of the reasons for selecting this site for discussion from the many other contenders is its longevity; another is the interesting fact, given the society's origins and first founding principle, that in the very early days it set up a special interest group for those people who use stories in health and therapy. At the time of writing, however, five more have been added; these are: education; faith and religion; libraries; museums and heritage; and business.

We spoke above about the drive for a more socialised web and we are beginning to see how web-based discussion groups and dedicated storytelling web sites are to some extent achieving this in as much as they allow web users to express their views and to communicate in a public space. Moreover, what they say does not merely influence what the site offers or will offer in the future but becomes itself, site content. However, this may still be regarded as unsatisfactory and restrictive because the pattern of participation and interaction is still basically linear. Bookmarking and tagging capabilities go some way to breaking out of this by enabling people to engage more directly with site content, and in the case of tagging, effectively insert their own text within the published text. Because at the time of writing, individual tags consist of single words or single-word

phrases, what results is a collective *weight* of response to the tagged object and a collective *type* of response. The second of these is given visualisation by a tag cloud which makes evident clustering and pooling of responses to the tagged object. Objects with many tags have larger clouds than do objects with few tags. Within a given tag cloud, those of the same type show that type as a relatively weighty tag; those of different types show those types as relatively light tags within the cloud. The more weighty tags whether within a given cloud or the surrounding website collectively give way to an emergent folksonomy: i.e. a bottom-up socially constructed ontology of terms which serves to describe the site and its contents. When in Chapter 5, we come to discuss the development of our own model; i.e. address point 2 above, it will become apparent that there are certain similarities to this now well established technology.

3.1.2 - Literature review

Whereas Chapter 2 followed a chronological footpath through the rise and development of narratology, this chapter brings our review of the literature up-to-date. Here, however, we are less concerned with the origin of ideas and more concerned with concrete models and applications. The concept of story-making offered by Harvey and Martin (1995) allows us to examine these models and applications from four perspectives: constructing, remembering, comprehending and telling. For ease of reference Table 3.1 indicates from our understanding of the author's perspective, which models are principally oriented towards, address or succeed in each of these areas: **C**onstruction, **R**ecall, **U**nderstanding and **T**elling. Ticks are awarded sparingly, and on the basis that an area earns one if it is

given full consideration, which is not to say that a model would fail in areas not ticked. Indeed, there are models that are interesting and potentially informative in other respects.

The first column indicates the research base: **l**iterary, **s**ocial and **c**ognitive. Given that some of the research discussed in this chapter is so applied as to have become detached, we exercise our own judgement and mark those that remain uncertain with a faint tick. There too, applied research may have obvious roots in more than one area in which case they will be ticked accordingly.

If in addition there is evidence of a particular narratological research genre or theory, for there may be more than one, then this is shown in the fourth column. Some of those that answer 'no' to this question cite research that is more narratologically inspired but we cannot reliably conclude from this that the later research is.

The centre columns indicate whether a model is, actually or conceptually, **d**igital or **m**anual.

Tick ratios at the far right of the table should not be construed as an indication of the relative research effort in a given domain or support area, only that these publications were most readily available to us. We are confident that if we cared to, we could find more literary inspired models, more models supporting construction and so on.

Table 3.1

Applied Research: basis, means of demonstration and areas of story-making addressed

Domain			Narratological base	d	m	Author	C	R	U	T
l	S	c								
	√		various	√		Kurtz & Snowden, 2002	√	√	√	√
		√	narrative intelligence	√		Cassell & Smith, 1999		√	√	√
	√		No	√		Rosson, 1999		√	√	√
	√	√	narrative affects		√	McDrury & Alterio, 2003	√		√	√
√			Propp [1928]	√		Paiva et al., 2001	√		√	√
	√		No	√		Shore, 2002			√	√
	√		narrative medicine		√	Greenhalgh & Collard, 2003			√	√
	√		various	√		Thomas et al., 2001		√	√	
	√		No	√		Karasati et al., 2002		√	√	
	√		Chatman, 1978	√		Mulholland et al., 2004		√	√	
	√		folk literature	√		Figa & Tarau, 2003		√	√	
		√	No	√		Burke & Kass, 1995		√	√	
	√		No	√		Domingue & Motta, 1999		√		√
	√		essential features		√	Denning, 2001	√			√
	√		plot units	√		Singh & Barry, 2003	√			√
	√		functional narrative	√		Freidus & Hlubinka, 2002	√		√	
√	√	√	schema theory	√		Mott et al., 1999	√		√	
	√		various	√		Lawrence & Thomas, 1999				√
	√		No	√		Pekkola, 2002				√
	√		No	√		Lutters, 2002				√
	√		point-structured	√		Neal, 2001				√
√			character-centred	√		Mazalek et al. (2002)				√
√			Propp [1928]	√		Braun et al., 2002				√
√			theatre	√		Strohecker, 1999				√
	√		audience theories	√		Sack, 1999			√	
		√	No	√		Boella et al., 1999			√	
		√	plot units	√		Allen & Acheson, 2000			√	
	√		narrative intelligence	√		Dautenhahn & Coles, 2001			√	
		√	No	√		Lee & Cox, 2002		√		
		√	No	√		Hinrichs et al., 1993		√		
	√		narrative medicine	√		Herxheimer et al., 2000		√		
	√		No	√		Johnson et al., 2000		√		
√			Various	√		Green, 2002	√			
		√	Scripts		√	Cohn, 2004	√			

3.2 - Technologically Implemented Models

3.2.1 - Ontologies and meta data

It can be argued that if the researcher knew either the likely function or domain then the way for developing supporting technologies is considerably eased. Knowledge of either or both would suggest for example, an appropriate ontology (Domingue & Motta, 1999; Mulholland et al., 2004). For Green (2002), the domain is art itself and the function is artistic production; she proposes a comprehensive ontology that would be applicable regardless of discipline. Kurtz (Unpublished) has developed StoryML a markup language that though not as comprehensive is thorough, and is currently in operation under its new name Narrative Pattern Markup Language or NPML (Kurtz and Snowden, 2002). It is designed to support all four areas: composing (construction), organizing (remembering), analyzing (comprehending) and telling. As StoryML, the markup language was still fairly impressive owing to its scope for expansion. At the highest level of enquiry, one concept of a story-base system based on it (Thomas et al., 2001) envisaged three distinct kinds: story form, i.e. content information; story function, i.e. its purpose and story trace, i.e. its history. At once this assumes a heterogeneous reader base, and predicts that a reader will want to explore only those dimensions that are of interest to them.

An earlier implementation of a system for markup was inspired by research of people's experiences of using the World Wide Web just as it was becoming widely available during the mid 1990s (Rosson, 1999). The story-base had open access and the schema

for story markup was designed very simply, having slots for title, keywords and contact information. Once posted on the story-base web site, browsing visitors could annotate it. The number of annotations the story currently had would display along with the rest of its metadata. Observation over several months showed a mean number of annotations per story as four. When the collection grew large for linear browsing, a search facility and 'theme' category were introduced. It was the moderator, not the author who would assign the theme. Because all postings were subjected to moderation, and over half were rejected, only six themes were needed to contain the collection. Certainly, two aspects of story-making have been addressed and these are 'recall' and 'storytelling'. We also acknowledge that 'understanding' is to a degree facilitated via annotation. However, this research has also discovered interesting patterns in the content matter of stories but these findings have remained academic when they could have been fed back into an improved design, one that would better support 'construction'.

Another, in our view more problematic approach to story markup and ontology building, operates solely on the story content which it uses to infer taxonomic and coherence relations (Figa & Tarau, 2003). Less problematic is a basic structural ontology allowed by Allen & Acheson (2000) who have developed a browser and a tagging system based on plot units (Lehnert, 1981, 1982) which in its present form can summarise only those stories that have simple rule-governed structure.

3.2.2 - Digital stories

A quite different approach to marking up on content is inspired by post-structuralist literary models. By giving the reader the freedom to navigate their own way through the links of a fragmented text, it offers a variety of character perspectives and reading experiences. Walker (1999) gives a personalised account of Hypertext literary reading which after several disappointing attempts was approached strategically and duly rewarded.

The need for character-centred rather than plot-centred narrative is well recognised in digital storytelling research. Historically too, Forster (1927) was critical of Aristotle's relatively higher regard for plot than for character which Forster allowed to be flat, round or a combination of flat and round; the round character having greater psychological depth than the flat one. Mazalek et al. (2002) who cite Todorov [1968] and Bruner (1986) have developed a storytelling environment that offers multiple perspectives. At this stage, it is the telling of the story that receives most attention though its potential in other areas is discussed. For Schroeder (1999) the plot is important in so far that it is where, in most literary works, the protagonist is involved in a conflict situation which they try to resolve. This process is modelled using a formal logic declarative argumentation framework. An implementation allows users to select predefined characters and situations or to define their own, and provides a visual representation of the argumentation process which may or may not end in resolution.

Another common feature of digital storytelling is the tangible object user interface. However, the principle concern for Braun et al. (2002) is to suggest which traditional story structures can be adapted to the interactive medium where there is active audience participation, narrators and performers. Propp's functions and their combination as dramatis personae that can be variously instantiated are found to be particularly well suited. Dramatis personae are also the agents of choice for the model of Paiva et al. (2001). It is designed specifically for use by young children in a classroom environment where it supports the teaching of drama and theatre by engaging them in construction, enactment and critique. The actions of the characters are not entirely controlled by the children since a major concern of the research is to achieve characters whose behaviours are believable. The Greek chorus provides inspiration for a model (Strohecker, 1999) which allows simultaneous users to not merely interact with the chorus but to take part in it and thereby influence the unfolding of the story. Storytelling and virtual environments is a research area that is generating a lot of interest and during 2002 a special issue of Siggroup (Special Interest Group on supporting Group work) Bulletin was produced specifically for this theme. Of relevance in this section are those that look at issues in the development and use of organisational memory systems: creating and recreating context (Lutters), tacit knowledge sharing (Pekkola) and story types (Karasati et al.). Also relevant are suggestions for supporting reflective practice (Freidus and Hlubinka).

3.2.3 - Case base influence

DIPEx[1] (Herxheimer et al., 2000) is an example of a technology that was designed with a clear function in mind: to educate, yet in our view supports only one aspect of story-making. The explanation for this lies in the name: DIPEx is a 'data' base with all the rigidity of organisation that implies. On closer inspection it is found that the stories are marked up on clinical conditions. It is also found that those accepted for inclusion are of patients with conditions that have been diagnosed, recording experience not yet recorded under that condition. This allows that in the first place, every story can be linked to the evidence and secondly there is little redundancy. In these two respects only, DIPEx is similar to the ideal case based or analogical reasoning system. However, it is not these but the other, less constrained aspects of case based reasoning systems that provide a starting point for thinking about architectures and operations appropriate for story-bases generally (Kolodner 1993, Schank 1999).

There is a sizable research overlap between case based or analogical reasoning and narrative technologies simply because stories make good case material. Case base technologies are therefore particularly suited for implementing organisational memory systems and so we must not disregard them. Johnson et al. argue that the way to improve access to organisational memory systems is to integrate the system with the working environment so that the user has access to the knowledge of others at the precise point of need rather than beforehand or afterwards which is less useful. Their solution links performance support tools with an existing ASK system, a conversational user interface to case libraries. Lee & Cox (2002) are concerned with allowing greater specificity of

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[1] www.dipex.org

enquiry in order to reduce the number of cases retrieved. Hinrichs et al. (1993) identify three areas for attention. These are *accuracy*, *efficiency* and *indexing difficulty*. The first requires that the questions asked of the user and the stories it retrieves should be maximally relevant, the second requires that the amount of information elicited from the user to inform retrieval should be minimal, and the third requires that the effort needed to construct and index the case base given the first two requirements should also be minimal. Concentrating on organisation and retrieval issues can be at the expense of the individual story if content is regarded as less important than coordinate value in the case space. In psychological models, however, position and proximity have an effect on understanding as well as on recall. It's debatable whether some of these models should be awarded ticks in the story understanding column of Table 3.1 and our decision depends on whether it is user understanding or technical performance that is being addressed, where often these two are closely related. Moving away from organisational learning environments and towards pedagogical ones it is evident that Burke & Kass (1995) are as much concerned with users' understanding of the case material as with its access. In fact, they make the point that even though theirs 'is an information retrieval problem it is not a problem that sits comfortably within the classical IR model'.

3.2.4 - eLearning

There are various avenues of story-related elearning research. One is specifically concerned with preserving the atmosphere of the traditional storytelling forum (Neal, 2001). Another uses the story as a way to develop a sense of community and identity in

virtual learning circles. The stories in this case are practice-related fictional ones written by students and tutors for personal reflection and exchange (Shore, 2002). The story's power to engage also factors high for (Mott et al., 1999) who want to enable learners to co-construct.

3.2.5 - Narrative intelligence

As an interdisciplinary research area Narrative intelligence is the name given to a broad linkage of AI and literary theory. Though mostly concerned with storytelling, the other three areas are variously also considered. Concrete models and implementations that exist are often agent based (Boella et al. 1999; Dautenhan & Coles, 2001). Dautenhahn (1999) in discussing what would be required of such agents lists the ability to: recognize, understand, predict, build direct relationships and understand third-party relationship; no small order.

It is not surprising therefore, that the more interesting discussions are theoretical and exploratory. Lawrence & Thomas (1999) are mostly concerned with the telling of stories and they offer suggestions for enabling the social dynamics of storytelling, namely power, risk and collaboration. Herman (1999) argues that any successful model of narrative intelligence must, in order to situate, relate and follow the movement of objects in a story, be capable of making spatial as well as temporal references, where hitherto it has been the latter that has received most attention.

Good examples of implementations are rare. The Victorian laptop of Cassell and Smith (1999) succeeds in combining, in a most elegant way, a number of technologies: semantic indexing, user interface design and virtual storytelling. In the prototype, these are all first person narratives of travel experiences. Narratives are written with a digital pen onto a surface that has the look and feel of a Victorian writing box. During writing, the system searches for contextually similar narratives of previous travellers which provide different perspectives.

Sack (1999) has developed a technology for examining rather than supporting, story understanding within social networks where the significance of stories owes to the fact that they bind communities that otherwise would not exist. Audience members in this research are not regarded as passive consumers of singular meaning texts, nor excessively active interpreters of dual meaning texts but as falling somewhere between these two extremes. Understanding of a given story is represented as a graph where nodes represent audience members and arcs represent audience dialogue. Arc length is inversely proportional to the number of times a given pair of audience members enter into discussion about the story.

Also within Narrative Intelligence, technologies have been developed or proposed for generating stories computationally, an endeavour which we regard similarly to Bringsjord and Ferrucci (1999) who discuss the failure to formalise interestingness and thus the futility of pursuing a purely logical path to building creative agents – some trickery is also required. Automatic story generation we regard as entirely different to

the Table 3.1 category which involves the human in the creative exercise, and so although there is a lot of research activity in this area (Lang, 1999; Theune et al., 2002; Callaway & Lester, 2002) it does not feature in the table although we acknowledge that in some of this research, audience response issues are major considerations (Bailey, 1999a, 1999b).

The more general psycho-social term narrative intelligence describes the means by which an intelligent agent's knowledge of its environment, and its own position and relation to it is gained, organised and imparted to others. In this category we can discuss research where it is not the story per se that is important but its knowledge eliciting power, where the knowledge in this case is of the commonsense kind. The research goal of Singh and Barry (2003) is to build a vast corpus of such knowledge as an initial step towards developing low-level analogical reasoning systems. To this end they have developed a web-based system for collecting the stories from the general public. On the one hand, the user's task of story creation is eased by their being given a choice of templates, all of which are based on plot units. On the other hand, the authors acknowledge how the template influences the user's input, and to remedy this they are increasing the number of templates offered. They also acknowledge the occurrence of syntactical mismatches between the user's input and the input frame, and to deal with this they allow other users to offer suggestions for their repair. In addition these users can evaluate a story by answering 'yes' or 'no' to general questions that can apply to any story. Once having created a story, the user is asked to make explicit the implicit assertions within it, both general and specific. At the more general level, each assertion is explained in a single

sentence, and again there are templates that the user can select from. At the more specific level the user is given a set of questions to which they can answer 'yes' or 'no'. The methods of supplying these low-level facts, suggestions for repair and evaluations demand a great deal of effort on the part of the user, more than the story creation process. We doubt that story understanding is addressed by these secondary activities because this is mainly a data gathering exercise. The basic user functions are given in Figure 3.1.

Figure 3.1

Basic user functions (Singh & Barry, 2003)

New: Enter a new story of this general type.

Clone: Start with a story exactly like this one, but modify a few aspects.

Explain: Explain this story by answering various questions about it.

Judge: Evaluate this story along various dimensions.

Repair: Suggest how to repair an error or other minor problem in a story.

3.3 - Pen and paper models

This section brings story research more up to date by looking at applied, domain specific models, that could very easily be supported by technology.

What these have in common is that they are all discourse models, offered to the storyteller as practical guides. They are more properly described as templates rather than

being researched theories, although some have an academic basis. The domains of application are knowledge management, medicine, education and software development.

3.3.1 - Springboard stories

For Denning (2001), the story above all other media has motivational and inspirational potential. This is maximised if narration is direct and by storyteller to an appropriate audience. In their construction too, 'springboard' stories require careful crafting. The main thing about these stories is that it is for the individual audience members to provide completion, which they will do to plan provided they can readily identify with the protagonist and the situation described. According to the example story templates, the structural components are as given in Figure 3.2.

Figure 3.2

Structure of the exemplar springboard story (Denning, 2001)

Context

Single prototypical protagonist (someone that the listener can identify with)

Predicament (something that the listener understands is not straightforward)

Resolution (carries the idea implicitly)

Drawing out the implications (helps the listener to get the idea)

Extrapolation (improves an otherwise true, unfinished story; provides happy ending)

Strangeness (provides interest)

However, the key qualities are as given in Figure 3.3.

Figure 3.3

Key qualities of a springboard story (Denning, 2001)

(1) Comprehensibility – spring the listener to a new level of understanding

(2) Strangeness – violate the listener's expectation

(3) Connectedness – link the listener to a protagonist and to the controlling idea

3.3.2 - Reflective stories

Greenhalgh and Collard (2003) are specifically concerned with storytelling within a small group of healthcare workers; they offer a template as a guide for people to structure their stories in such a way that learning points might be drawn from them during later discussion. In Figure 3.4 below, the asterisks mark five key features that the authors regard as important to gaining maximum educational value from a story.

Figure 3.4

Suggested template (Greenhalgh and Collard, 2003)

(1) Who is the story about? *

(2) Why have you chosen this story?

(3) What happened in the story? *

(4) How did the people in the story feel or react? *

(5) What was the outcome?

(6) Should anything have been done differently, and if so, what and how? *

(7) What questions or issues does this story raise?

(8) What are the learning points for you and for other people? *

(9) Any other comments?

Items (1) and (2) provide the context of telling; items (3), (4) and (5) comprise the story itself; the remaining items provide points for reflection, and of these, (6) suggests an alternative outcome that might have altered the feelings or reactions of the people in the story.

This time in the domain of higher education, McDury and Alterio (2003) like Greenhalgh and Collard, are interested not just to explore stories to uncover meaning but to develop them too. They also offer a template (adapted below); this attaches to the written story and is filled in by the author in such a way that each slot value annotates the relevant line of text. They suggest that initially, the author focuses either on key players and their feelings or the storyteller's feelings.

Figure 3.5

Suggested template, adapted from McDury and Alterio (2003)

(1) Naming the primary focus (e.g. storyteller's feelings) / (e.g. key player's feelings)

   and identifying key feelings (e.g. anxiety, relief)

(2) Identifying other feelings (e.g. nervousness, …)

(3) Linking with significant events (i.e. for each feeling, give an explanation)

(4) Debriefing in small groups (i.e. sharing insights)

(5) Creating a title (e.g. can reflect actual events, feelings, debriefing outcomes)

When identifying other responses (2) the writer may modify the story text. Beyond this stage, the writer may still wish to modify the text but is encouraged instead to share their insights in a debriefing session (4).

3.3.3 - User stories

At the surface, the model suggested by Cohn (2004) bears certain similarities with that of Denning (2001). The stories in this case provide a more dynamic, evolutionary alternative to the system requirements document used in the software design and development lifecycle. Although it is stressed that the story should originate with the potential users of the system they are nevertheless then crafted in such ways as to make them serve their function better which in this case is to more effectively meet those customer requirements. However, the examples Cohn gives are so unlike stories encountered anywhere else in this thesis that it is quite remarkable they could be referred to as such even metaphorically (Fuchs, 2002). For example, the six attributes of a "good story" are given in Figure 3.6 below

Figure 3.6

Story attributes according to Cohn (2004)

Independence: It should not be dependent on another story

Negotiability: Its text will serve as a trigger for discussion with the customer

Valuable to users and customers: It should not be written by a developer

Estimative: The time to translate it into executable code should be calculable

Small size: It should be neither epic (complex or compound) nor too small

Testable: It should be written in a way that allows functional testing of resulting code

An example of a "good story" is:

"A company can pay for a job posting with a Visa card."

By even minimalist standards (Prince, 1973) this could not qualify as a story, there is only a potential unrealisable state, there being no action that could make the transition.

3.4 - Concluding discussion

In this chapter we set out to discover how narrative and technology have been conceived to date. Like Burke & Kass (1995) we have been less concerned with technologies that support information or knowledge domains and more concerned with those that support story-making, a multi-dimensional activity that covers all the sub-activities of construction, understanding, recall and telling of stories. In the story-making space, truth and falsity braid and cease to matter; of more matter are the involvement, engagement and reward experienced by the human story-maker. For this reason we have mainly confined our review of the literature to narrative tools be they manual or digital. However, we have on occasion discussed case-base technologies which have developed from a particular cognitive model, one that has inspired socially situated and shared

knowledge models. The access and organisation issues in case-base research are similar to those of the story-maker regarding recall. Case-base research is usually less concerned with understanding, except in machine terms and is usually even less concerned with construction and telling.

It may be argued that we have strayed too far into an area of digital story-making research where the story-maker is technologically conceived. There are three reasons why we would disagree. Firstly, much can be learned, some of which can re-inform technologies that would focus more on the human story-maker. For example, Bringsjord and Ferrucci (1999), whose story generator still needs the human hand, remind us of the audience's demand for the aesthetic. There is also a noticeable downplay of the temporal unfolding and greater attention to character perspective (Mazalek et al., 2002) and space relations (Herman, 1999). Secondly, we regard impossible any suggestion of a story-making environment where humans did not factor. It is just that in certain research, the technology and not its ultimate use is what is talked about. Indeed our criterion for Table 3.1 entry is that the contender must explicitly support at least one of the four aspects of story-making from the human user's point of view. This brings us to our third reason: the definition of story-making proposed by Harvey and Martin, one we have found so useful in our analyses, does not explicitly include nor separate from the other areas, an 'entertainment' category. The goal of digital story-making technologies is often to achieve just this, and we too believe the 'entertainment' function of stories deserves attention.

From this chapter we can draw the conclusion that there is in fact very little work to date on the design and use of storybases, and especially those that would also adequately support all the various storymaking activities and so we are confident that there is a gap to be filled.

Drawing mainly on what was learned during our review of pioneering models in Chapter 2 we are able to begin to address the first of our two principal concerns in the Introduction above. In Chapter 4 we describe and utilise a model for identifying and extracting stories from discourse. But we now have in addition, a collection of concrete models which we expect to inform the more practical side of our second endeavour which is to design a schema and to suggest an operational environment conducive to story-making generally; this we address in Chapter 5.

Are there medical people communicating via stories online?

4.1 - Introduction

This chapter addresses the research question of whether healthcare professionals use the popular and available online discussion forums mentioned in Chapter 3. More specifically it describes an experiment designed to discover whether they share stories on this particular medium. The outcome will be crucial for the continuation of this thesis: if the evidence is very slight or completely unfound, then it would suggest that there was something about the story that does not, cannot mediate in this way.

4.2 - The questions

During the months of August 2002 and February 2003, observations were made of the online discussion group GP-UK[1], the purpose being to gain insight on the participatory behaviour of individuals and of the group as a whole. There were 5 main questions:

(1) What do they discuss? – social topics, professional, …?

(2) When do they discuss? – frequently, infrequently, …?

(3) Who are the discussants? – GPs, general public, …?

(4) Where are they located? – national, multinational, …?

(5) How do they discuss? – question and answer style, exchange of stories, …?

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[1] http://www.jiscmail.ac.uk

4.3 - The answers

To begin with, in partial answer to 'who?' and 'where?' is an extract from a posting welcoming a newcomer to the group.

"GP-UK is a different beast – being large and diffuse, not aimed at a specific target – and yet many of us have met many of us, so that a diagram of connection would look like another fractal piece of the Web or any of these universes where there is a small number of degrees of separation between people.

The duration of GP-UK is also longer than the sort of task-focussed group you seek, in that a MRCGP discussion group that exists for longer than 3 years is almost certainly doing it wrong in at least some members' cases, …

But GP-UK is commonly a friendly place, and there is a lot of GP experience behind the scenes, so you may find it of occasional value."

During the periods being studied, August 2002 and February 2003, discussion ranged across three continents: Africa, America and Europe but it was mostly within UK. The majority of the discussants were GPs but there were also pharmacists, nurses and medical informatics people. In August 2002, there were 90 contributors to 144 discussion threads and in February 2003 the numbers were 102 and 154 respectively.

A discussion thread may or may not be query initiated, that is, where the posting contains at least one explicit question somewhere within it. In August 2002, exactly one half of the threads were query initiated and for this reason it was felt unnecessary to collect data on this in the second period. Another thing that was dropped from enquiry in the second period was the relative activity of the discussants. In August, one fifth of discussants each contributed ten or more postings, and one quarter each contributed just one. With

exactly six months intervening, it was found that 64 percent of the August contributors were still active in February and that conversely, 58 percent of the February contributors were previously active.

A first pass over the data suggested that discussion was usually in one of two veins: *professional* or *social*. However, *information technology* pervaded both, and so it was felt that it merited a category of its own. It is in this category also, that discussion pertaining to medical informatics was placed.

As we said in the Introduction, this study is crucial to the thesis, for it seeks to prove that medical professionals are already exchanging stories electronically. That is, if stories are as pervasive as research suggests, then they would be found here; but how?

To begin with, there is a need to identify the presence of something that is not conversation, within the conversation, and thus to identify boundaries. At the same time, criteria are needed for determining what constitutes a story, and to be able to apply them to those bounded areas and to establish a divide between stories on the one hand and non-stories on the other. Because ultimately, the future of this research depended on being able to identify stories, the test should be particularly rigorous. It was for this reason that the model proposed by Gabriel (2000) was chosen from among the various others suggested by the literature review in Chapter 2.

4.4 - Identifying boundaries

In Young's Edgework (1982) a conversation can be viewed as enclosing, whereby there is an outermost 'Realm of conversation', an innermost 'Taleworld' and an intermediate 'Storyrealm'. Taleworld though ongoing, is provided with *beginnings* and *endings* by the enclosing Story realm which in turn has *openings* and *closings* separating it from the enclosing Realm of conversation. *Beginnings* and *openings* and *endings* and *closings* are devices by which the story is set apart from the conversation surround.

There are two fundamental differences between Young's data and the data here: hers was verbal and synchronous whereas the present data is textual and asynchronous. It might be expected then, that it would be more difficult to detect these boundaries, even whether the model would apply.

It is actually very rare for the boundaries to be as obvious as the classic opening 'Once upon a time' and 'The end' closing, and indeed the only time such markers were detected, the contained text failed the subsequent test. More frequent indicators are the use of white space, change of rhythm, change of tone, and so on. It was by such means that it was possible to take the first step and isolate portions of text. It was also in this way that stories within stories suggested themselves.

4.5 - Story features

We said earlier that not all narratives have the completeness and viability that story status

demands (van Dijk, 1975), and so there is a need to establish how these qualities might

be judged to be present.

According to Gabriel (2000), stories narrate experience rather than opinion or fact.

Narratives that are stories are rich in:

Plot   Action   Character   Emotion   Symbolism

In borrowing these criteria it should be borne in mind that Gabriel is primarily concerned

with what stories reveal about an organisation, not with the function of stories and

storytelling *within* (e.g. Hunter, 1991; Greenhalgh & Hurwitz, 1998; Trautmann, 1981).

4.5.1 - Story plot and point

For Gabriel, as for most though not all story researchers, stories require plot; that is, a

narrative of events occurring in causally related sequence. Causality if not explicit can

be inferred by the reader, and for Czarniawska (1998) at least, the presence of "and then"

is just such a signal. Although causal sequence is easy to detect, it can be difficult to

abstract. In such cases we have asked whether there is in addition to the plot, an

identifiable point to the narrative. We have found that for these stories, points are more tangible than plots and hence can be abstracted more easily.

4.5.2 - Story action, character, emotion and symbolism

One cannot detect action without first detecting agency which in its turn guarantees intentionality. It is this last that is the first requirement of any story, and so action can be interpreted less in its physical, and more in its psychological sense. Action too can be said to be present if the reader is able without effort, to get a sense of physical movement.

A protagonist agent is of course essential, but there can be additional characters whether active or passive, central or peripheral, human or otherwise.

Like plot, emotion is allowed to be something that the reader gets from the text whether or not it is portrayed within it; Gabriel refers to both kinds. A sense of emotion then would be enough to qualify here.

Symbolism refers to an object that stands in for another object whose actual identity must be inferred by the audience. Imagery on the other hand refers to an object whose identity is made known. This requirement has been relaxed to allow evocative imagery.

4.6 - The findings

4.6.1 - Quantitative data

The quantitative data are presented in the tables below. Tables 4.1 and 4.2 give for the months of August 2002 and February 2003 respectively, the number of postings, number of stories, and number of potential stories per discourse category. A potential story is an abstracted piece of discussion that does not quite qualify on Gabriel's terms because it lacks one or more of the stated ingredients. It would however, have compensatory factors like interesting content (e.g. Wilensky, 1983) and first person involvement (e.g. Hensel & Rasco, 1992). It is decided that for a story or potential story to be located within a discourse category, its content should be predominantly of the area. This is of course a subjective judgement and the final column provides a reminder that in terms of content, the story is not so easily contained. On the other hand, the degree of overlap is small and it is very rare for a story to range over all three discourse areas.

Table 4.1

August 2002 postings, stories and potential stories by discourse category

Discourse categories	Postings	Stories	Potential Stories	Totals	Stories and potential stories that partially overlap other discourse categories
Professional	291	12	25	37	6
Social	173	7	11	18	4
Technological	231	2	15	17	3
Totals	695	21	51	72	13

Table 4.2

February 2003 postings, stories and potential stories by discourse category

Discourse categories	Postings	Stories	Potential Stories	Totals	Stories and potential stories that partially overlap other discourse categories
Professional	714	45	25	70	10
Social	118	4	4	8	2
Technological	264	1	9	10	2
Totals	1096	50	38	88	14

In August, of the 695 postings, 3 percent qualified as stories and 7.3 percent as potential stories. Although there were only slightly more threads in February, the number of posting was considerably higher, and of these 4.56 percent qualified as stories and 3.47 as potential stories.

Given the medium, it is almost inevitable that the stories like the discussion from which they were drawn would be opinionated. Genre classification would be a test indeed since even though the stories and potential stories narrated experience, they often did so in a factual way, and on Gabriel's terms, the stories would only qualify as reports – the lowest kind. Nevertheless, it was decided to organise them under Gabriel's story types. Almost without exception, these stories had a diarist style and rather than introduce a new story type to accommodate them, they were placed under 'reports'. Once located, it was then possible to relocate many of them under a second story type. This provides a reminder that when it comes to kind, the story is not so easily contained.

Tables 4.3 and 4.4 below show *tragedy* to be the most common story type after *report*. As well as pity and fear, tragic stories evoke emotional responses like anger and anguish for they are often about perceived injustice. *Gripes* express personal, small-scale injustice and so are less stirring. *Tragi-comic* stories are those where an account of a tragic situation is humour tinged. *Comic* stories could be just light or could have elements of satire or farce. In Gabriel's sense, quite a few stories were of a *romantic* nature: they portrayed generosity and kindness. *Epic* stories were about personal adventure, challenge and conquest. The report type as previously explained was broadened so that it would admit descriptive and factual accounts that also had a musing quality. In both tables the leftmost column identifies the genres of the stories and potential stories. The cells comprising the next six columns record whether a given story or potential story is either partially or wholly of the genre. The percentage of mixed genre stories and potential stories found in August was less than that found in February. A comparison of the relevant totals cells in Tables 4.1 and 4.3 for August, and in Tables 4.2 and 4.4 for February, show the percentages to be 9% and 39% respectively.

Table 4.3

August 2002 stories and potential stories by genre

	Professional		Social		Technological		Totals		
	Stories	Potential	Stories	Potential	Stories	Potential	Stories	Potential	Both
Tragi-comic	3	0	0	0	0	2	3	2	5
Comic	1	2	2	3	0	0	3	5	8
Tragic	3	1	2	0	0	0	5	1	6
Gripe	0	0	0	0	0	0	0	0	0
Epic	1	1	1	0	0	0	2	1	3
Romance	0	2	0	2	0	0	0	4	4
Report	6	20	5	7	2	13	13	40	53
Totals	14	26	10	12	2	15	26	53	79

Table 4.4

February 2003 stories and potential stories by genre

	Professional		Social		Technological		Totals		
	Stories	Potential	Stories	Potential	Stories	Potential	Stories	Potential	Both
Tragi-comic	2	0	0	2	0	0	2	2	4
Comic	6	2	0	0	0	1	6	3	9
Tragic	17	2	2	1	0	2	19	5	24
Gripe	2	0	0	0	1	4	3	4	7
Epic	9	2	2	0	0	0	11	2	13
Romance	9	1	1	0	0	0	10	1	11
Report	37	25	3	2	1	8	41	35	76
Totals	82	32	8	5	2	15	92	52	144

During both periods a total of 71 stories and 89 potential stories were identified. A small subset of the stories is produced below. In Chapter 6 a different and larger subset will provide material for Study 2. Taken together, these two selections provide a representative sample of the collection. Those shown here are displayed in frames, one

for each story. The slots at the top of each frame contain the discourse category, genre or

genre mix, subject of the posting and an example explanation of how the story meets

each of the five criteria.

4.6.2 - Qualitative data sample

All the stories and potential stories for both study periods can be found, ordered by

discourse category, in Part A of the associated technical report (Kwiat, 2009).   The

subject headings of the relevant postings are also given. Frames 1 to 8 below contain a

sample of the fully qualifying stories. Each of the discourse categories and each of the

genres found are represented.

Frame 1

Discourse	Professional
Genre	Tragic Report
Subject	Re: Eprex
Plot / Point	On discharge from hospital patients expect and should be given information about their care.
Action	"He had been discharged from hospital"
Character	Patient
Emotion	Frustration
Symbolism	"flower arranging" symbolising low risk occupation

I had a patient come in yesterday with a box of vials of Erythropoetin. He had been discharged from hospital, given a slip to bring to GP for the drugs he needed which included the [erythropoetin]. But no letter giving instructions on why, when and what follow up intended.

He said he asked that they give him the information when he was leaving the hospital but was told they don['t] do that – it would go by post!

So unhelpful. Patient now faces delay while we sort out what we are supposed to be doing.

Now I read this about more risk! I think I will go into flower arranging instead.

Frame 2

Discourse	Professional
Genre	Epic Report
Subject	Re: Would you enter General Practice at this point in time?
Plot / Point	Fixed expectations will result in disappointment.
Action	"It's a journey, an exploration"
Character	metaphorical children
Emotion	enjoyment; surprise
Symbolism	"glimmer" symbolises taking pleasure in the small things

Also like bringing up children is the notion that if you set off knowing what you're going to do and how you're going to do it you are destined to fail.

There are things I thought I would do 15 years ago [and] I haven't, (and one has taken most of that time to come to fruition), many of the things I have done in general practice I'd never even thought of when I started. It's a journey, an exploration. Be prepared to end up at destinations you hadn't envisaged and make the most of them, rather than struggling always to be on your original preferred road.

And find things that you enjoy in whatever you do, so that when you hit the dull or dismal patches there is a glimmer.
[…]

Frame 3

Discourse	Professional
Genre	Romance Comedy
Subject	Re: The concept of holistic longitudinal care provided by a named doctor is dead
Plot / Point	Why I stay, and what will entice me to abandon what I really care about.
Action	"I'll do two home visits a day"
Character	inner city GP
Emotion	enjoyment; generosity
Symbolism	"bite their hand off" symbolises latent greed

I think about this a fair bit.

There are many career options available to simple blokes like me. I don't **have** to spend the next 20+ years as an inner city GP, so why stick at it?

Partly, it's because it's what I know and changing entirely to something else would entail work, effort, energy and involve the chance of failure to attain something I'm not sure I really want.

So, yes, laziness is in there. I told you sloth was one of my personal deadly sins.

But, [to be honest], it is the continuity of care that keeps me at it. I derive some serious professional and personal satisfaction and enjoyment from looking after people (in the limited way I can) over time.

Which doesn't mean that I wouldn't bite their hand off if they offered me 150 grand a year to join a 50-doctor city-wide "partnership". Everyone has their price, and I reckon mine is probably, at the moment, about 150 grand a year. Chuck in a lexus 4x4 and I'll do two home visits a day. But not to houses where there's faeces on the carpet (human or animal).

Frame 4

Discourse	Professional 75%, Social 25%
Genre	Tragi-comic
Subject	Re: Who employs who? – legal question
Plot / Point	My voice is only a foot in the door in a racist institution.
Action	"I rang up the Practice"
Character	Practice Manager
Emotion	fear; humour; hope
Symbolism	"multi-culturalism" symbolising an *in*equality of opportunity

Many years ago, I fancied a job as a GP partner somewhere in Dorset. I rang up the Practice because I'd just missed the deadline.

I: "I know the deadline has passed, but is [it] too late to apply now?"

The Practice Manager, who, obviously cannot see me but can hear my voice on the phone, obligingly replied:

PM: "no no, it is alright, we've had to extend the deadline because all the applicants so far are Indian doctors"

I: "oddly enough…" (fill in whatever you like).

Ever since that encounter, whenever I apply for a job, I make sure they hear my voice first!

Now, I am going for the Deputy Chief Medical Officer job. Will you support me? Will they laugh their socks off? Will they welcome someone who can transcend and go beyond "multi-culturalism"?

Will [correspondents] sign a petition addressed to Sir Liam? :-)

Frame 5

Discourse	Professional 60%, Social 40%
Genre	Gripe
Subject	Re: Ortho stuff
Plot / Point	Experience of spending a few hours in cas.
Action	"came off her moped"
Character	triage nurse; my eldest; receptionist
Emotion	Annoyance
Symbolism	"worst of headmistresses" symbolic of uncaring behaviour

I have spent a few hours is cas today – my eldest came off her moped this [morning]. No bones broken but the moped now has silver "go faster stripes"
  – which incidentally match the ones on my car that I acquired when I had an argument with a concrete post yesterday. The children and I were busy with sticky fixers and selotape trying to hide the worst of it before my husband came home yesterday – so far he doesn't know (so please keep quiet).

The receptionist in A&E was like the worst of headmistresses and the triage nurse so brusque that my daughter didn't get a chance to say what hurt. In any case everyone went in ahead of her it seemed especially if they had no visible injury.
[…]

Frame 6

Discourse	Social
Genre	Epic Report
Subject	A night on the road
Plot / Point	Experience of a night stuck in snow.
Action	Action that was not taken, e.g. "gritters had not done their job"
Character	Star Cambridge radio station
Emotion	sad; embarrassed; thankful
Symbolism	"best of British" used figuratively; "great privilege" used ironically

Not a unique experience I know but a couple of nights ago I enjoyed the great privilege of a night on the A14/A428.

Fortunately in a car with a full tank of gas, blanket and if needed sleeping bag, drinks and spare large bottles, and a few odds and ends such as jump leads which could be loaned out to the unfortunate.

Particular credit should go to Star Cambridge radio station who broadcast all night, with very few if any adverts, and provided both useful information and entertainment. Amazed how irritating the adverts were when they restarted in the morning. Anyhow a small token of thanks will be winging its way to them soon.

The snow was indeed no more than a couple of inches thick. The chaos it caused was embarrassing, probably unnecessary, and was not mitigated by the feeble attempts of the authorities to provide emergency services.

On the section of road that I was stuck on (A14, through Girton interchange, and up to the Maddingley roundabout, approx 17:30 – approx 07:00) unless anyone considered themselves a sufficient emergency to ring 999 there were no offers of food or hot drink, no opportunity to get to a centre except by dumping a car in the outside lane and walking, no access for women to toilets, no supplies of grit to use under individual vehicles that got stuck, and no supplies of shovels / spades.

The fact that gritters had not done their job before people were told to go home early was in fact a minor part of the story. With a carriageway in the opposite direction entirely clear why were supplies not made available?

I've heard people say on the media that we shouldn't grumble about such relatively minor things, that we should be resilient enough to cope and basically I'd say that not only did we cope but that as ever the best of British showed through.

Sadly the same wasn't true of the authorities who left people languishing for more than 12 hours quite possibly for the want of some interventions that would have been very simple had they been prompt (grit and spades to help lorries out of the way).

Still, as they say, part of life's rich pattern.

Frame 7

Discourse	Social
Genre	Comedy Report
Subject	Re: Taking the pus
Plot / Point	The politically correct version of the message is distorting and shallow.
Action	"Just back from church"
Character	Japanese organist
Emotion	anger; happiness
Symbolism	"happy chat" symbolises people behaving as members of the Human Race; "aujourd'hui" French for "today"

Just back from church, where we sang Rutter's "For the Beauty of the Earth". The third verse begins "For each gracious gift of thine, to our race so freely given". Some members of the choir had copies in which "our" was crossed out and replaced by "each".

As I'm very grouchy about political correctness at the moment, and since I was acting choirmaster aujourd'hui, I told 'em to sing "our". It refers, I believe, to the Human Race.

Afterwards had a happy chat with a visiting Japanese organist, who naturally took my photograph next to the organ console. (how about that for racial stereotyping?)

Frame 8

Discourse	Technological
Genre	Report
Subject	Encryption, Digital signatures and "signed" referrals
Plot / Point	Speech therapists' unnecessary demand is delaying electronic referral trial.
Action	"I sought guidance from the project co-ordinator"
Character	Speech Therapists; Project Co-ordinator
Emotion	puzzlement; annoyance; humour
Symbolism	Figurative use of "killed"; mysterious meaning of the shrug and wry smile

Keon secure token encryption installed and now ready for our first trial of electronic referral letters over NHSNet for rehab and community services. Except the Speech Therapists have demanded a hand signed (paper) letter from each gp involved in the pilot before they will accept digitally encrypted and signed electronic referrals. I sought guidance from the project co-ordinator as to the rationality but received only a wry smile and a shrug of the shoulders. Am I missing something?

And an anecdote:

> Keon killed both W2K machines it was installed on which had been upgrades of W98, but no problem with clean install machines. Be warned….. No help from Keon BTW.

4.7 - Concluding discussion

We began this chapter by asking the question: Do healthcare professionals use the popular and available online discussion forums to tell stories? The discussion group selected for Study 1 was chosen because it has a broad membership and would therefore be more likely to admit people and topics that narrowly focused speciality forums would not. The selected discussion group was approached in the belief that if stories were to be found, that this would provide evidence of the potential for an online story base.

The mere presence of stories did not surprise since it just provides concrete evidence that people are inclined to communicate in this way regardless. What did surprise was the quality of the stories and it is this finding that strengthens the argument regarding the resource value of such a collection. Having examined the postings, threads and archives from which these stories were taken, it is further argued that if the quality was good here where the medium is hardly conducive to story exchange, then how much better it might be where the medium is specifically designed to facilitate it.

In all, 9 percent of postings had at least story potential with 4 percent qualifying fully, and these were consumed by readers who pressed for more in their often sympathetic, often funny responses. Aside from the small sample shown above, another subset, likewise representative of a cross-section of the fully qualifying stories has been taken for use in the annotation study described in Chapter 6. The makeup of this second subset is approximately reflective of the discourse category proportions found here so that

professional discourse provides seventy five percent of stories, and social and technological discourse provides seventeen and eight percent respectively.

Not all the regular contributors to GP-UK are general practitioners but around 95 percent are. The remainder are mostly individuals in various professions within the primary sector; but as stated at the beginning of this chapter, one or two come to the group temporarily because they want to draw on the knowledge and expertise of the regulars. Occasionally people make contact from overseas, with an initial appearance via query, and are then drawn into parallel discussion to become regulars themselves.

The reason for dividing up the discussion space into threads triggered by query and threads triggered purely by a wish to communicate was to learn whether the discussion group is essentially query driven, or whether it could survive on commentary alone. Then also, it might have yielded a natural readership (the questioners) on the one hand and a natural authorship (the storytellers) on the other. However, no such divide was found; a story can be framed by a question or it may contain questions within.

The reason for dividing discussions into discourse categories was to find what people talked about most, and whether stories occur more readily in one than in another. An abundance of stories was found in the professional sphere but relatively few in the technological sphere, even though it was a larger discussion area than the social one.

At just 4 percent of postings, the number of stories proper is small but not that small, given that the medium does not explicitly support story exchange. It is also felt that

Gabriel's criteria of what constitutes a story, in this particular context is overly strict. It was used because it had already proved itself in application, but had done so in a domain of enquiry that was quite different from the present one.

What has been learned in this chapter is that stories are exchanged online even though the technology looked at in this case is not designed for that purpose. This gives reason to expect that a technology specifically designed to support story exchange is timely. Another thing learned is that stories are not easily contained either with respect to content or to type. These discoveries prepare the way for the next chapter which is concerned with designing a story-making model, one that will at the very least allow the mix of content, structures and styles found here.

Chapter 5

The proposed story-making model: Point, Perspective and Proximity

5.1 - Introduction

In the previous chapter we employed a story model suggested by Gabriel (2000) to assist us in identifying stories within online discussion. As we did so we discovered that a number of potential stories that might have qualified did not. The reason for this is that Gabriel was looking for narratives that yield truths about the life of organisations, whereas the concern of this thesis is to identify texts that when stripped of their discussion surround remain complete, cohesive and most importantly, in possession of certain qualities that taken together arouse interest and curiosity in the reader. Identifying these qualities is, for us, the first step in establishing just what the requirements of a story annotation scheme are.
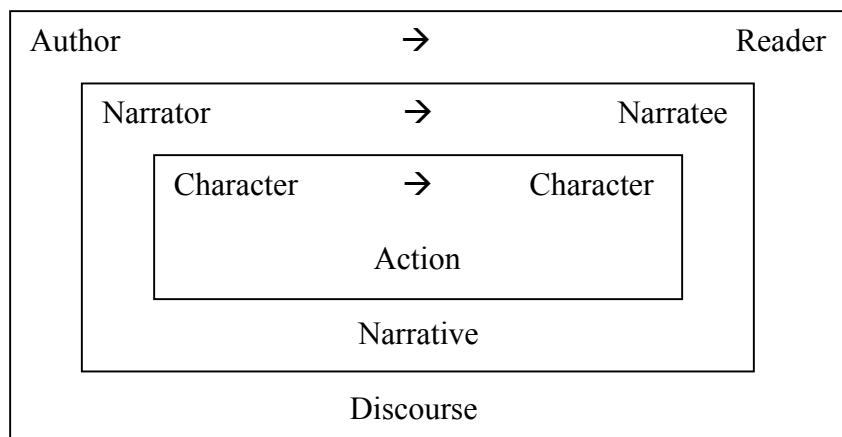
However, by using someone else's strict criteria, we have proven beyond doubt that medical professionals discussing online will slip into story mode, and we have also established that the model is too strict for general story-making.

From both Study 1 and the reading of the literature we have learned that people share stories for many reasons; in the terms of Schank et al. (1982) and Wilenksy (1982,1983) respectively, they have different *kinds* of *external* point. It is for this reason that the model described in this chapter will be one that supports the artificial as well as the natural story (van Dijk, 1975); this will at once, give the author poetic license at the action level and allow any stance to be taken at the narration level.

Figure 5.1 below shows the generally accepted narratological box model of narrative communication as three distinct and nested levels. The outermost (discourse) level is occupied by the actual author and actual reader. The author constructed narrator and narratee occupy the next (narrative) level. The characters occupy the innermost (action) level.

Figure 5.1

Narratological box model

However, this is a model of artificial, not natural story exchange and so an annotation schema based on it will have insufficiencies. A model of natural story exchange will likewise exclude the artificial that our chosen model must allow. The main problem with the model shown in Figure 5.1 is that the boundaries are too rigid, especially with respect to the narrator whose position can be ambiguous. For artificial stories the narrator is purely imaginary, whereas for natural stories, the narrator, main character and author are usually, but not necessarily, one and the same. We accept that the narratee as idealised

reader is always imaginary since the author can only predict a reader's reaction to the story. Our main complaint with the box model here is that the author might imagine a number of readers, all ideal but all different.

This chapter will describe the architecture, function and operation of the proposed annotation model. The chapter is organised as follows: firstly in Sections 5.2 to 5.3 an annotation schema is proposed, then in Section 5.4 a system for attribute value selection is described and in Section 5.5 the proposed operation of the model is developed. The chapter ends with discussion in Section 6.

5.2 - The annotation model

The annotation model proposed is a hybrid model, informed by several of those discussed in Chapter 2 including feature, structural affect, reader and point models. What we mean by annotation is something that operates in similar ways to Barthes' [1966] implicit and explicit signifiers. It was firstly motivated by the understanding that authors are the obvious candidates for marking up their own stories. The primary reason for enabling readers as well as writers to annotate them is that it improves a story's retrieval prospects. It does so in one of two ways: by recording perspectives that differ from authorial ones or by adding weight to the latter. At the same time, there is a desire to make the task relatively simple, and this explains the choice of attribute set.

The proposed model consists of four planes. The first records reading or writing contexts, i.e. *date*, *place* and *annotator relations*. The second is concerned with the story's communicative potential and so records *narrators* and *audiences*. The third is for the *characters* and the fourth is for the *points* and *features* of the story. Apart from these planes there are facilities for enabling annotators to explicitly *relate* stories one to another. For most attributes there is no constraint on the number of suggestions a given annotator can make, the principal exception being the *Main point*.

The model is shown in Figure 5.2 below. As long as one accepts that boundaries aren't fixed, a story can be thought of as having an *internal* part and an *external* part. Annotation of the internal part involves the reader or writer in making suggestions with regard to a story's *content* which is explicit and its *co-text* which is implicit. Annotation of the external part involves the reader or writer making suggestions with regard to the *context* of annotation and the *perspective* of the reader or writer.

Figure 5.2

Annotation model

Context / Perspective

Author relation/s Time of authoring Place of authoring	Reader relations/s Time of reading Place of reading

Story A

Direct links

B
Reader 1
Reader 2

C
Author

D
Author
Reader 2

Audience/s

External (discourse)

● ●

Internal (action)

Narrator/s
Main point Other point/s Feature/s
Other character/s Antagonist/s Protagonist/s

Co-text / Content
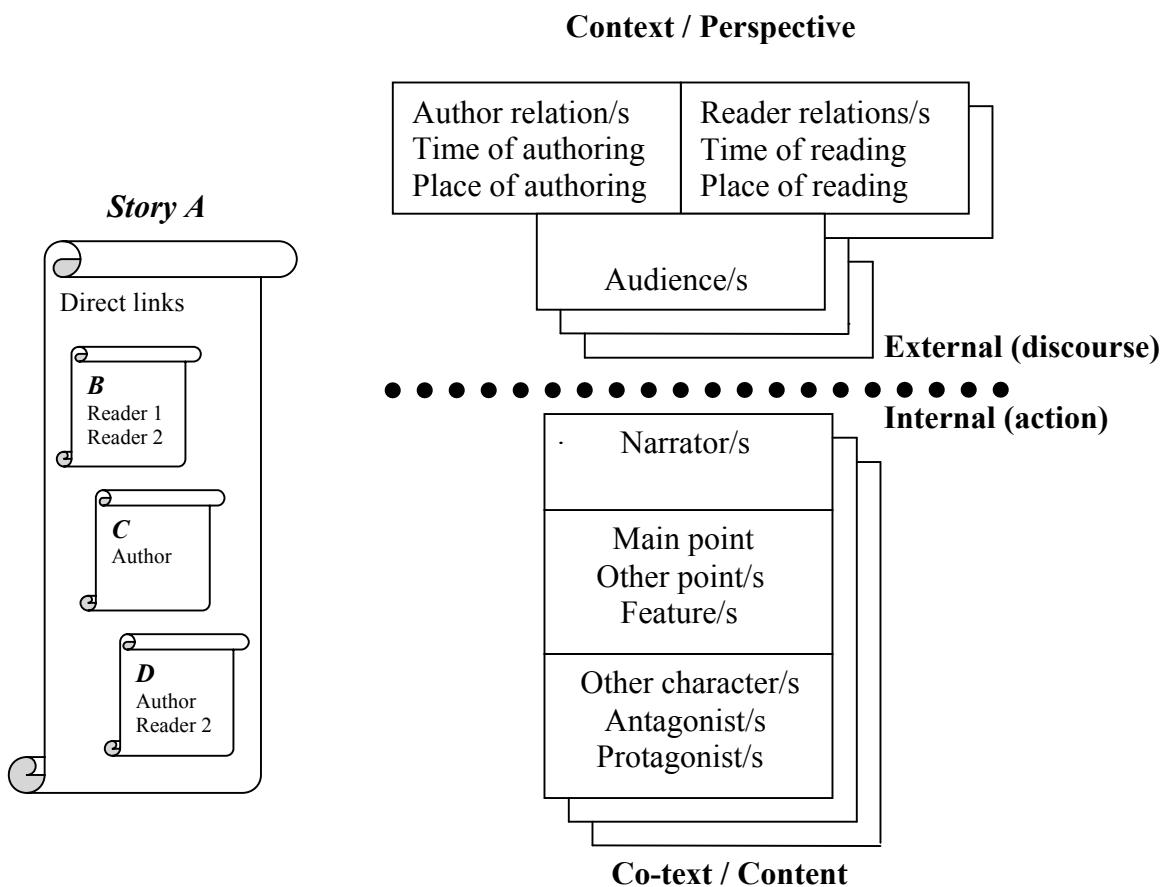
Figure 5.2 shows a stack of three annotation frames: one for the author's markup of Story *A*, and one for each of two hypothetical readers of Story *A*. This kind of sharing allows explication of the author's intent on the one hand, and on the other, free play to readers' interpretations. The model predicts that knowing the author's intent does not restrict readers to a particular interpretation. Therefore it is reasoned that author + reader markup will usefully cluster and locate stories that authorial markup on its own would

not. The internal/external divide is shown as porous and this is because the model predicts that the stories will be mostly point-structured. Rather than being explicit in the text, this usually means that the point and the narrator especially will depend on the reading and writing context and will therefore require the annotator to look beyond the text. The model does not preclude stories of a fictional or fantastical kind. These stories have immersive potential, engaging the reader by pulling them into the text.

One difference between Figure 5.2 and the box model of Figure 5.1 is that in our model, the narratee has been replaced by audience/s which allows potential readership. A second difference is that the model has planes rather than levels and it permits a degree of movement among planes. The point may be evident in the text or it may require the annotator to construct the text which in turn will involve them in reaching outside the text. The porous internal/external divide is bordered by the narrator on the internal side and the audience on the external side. The narrator, in addition to being the one who narrates the text, may be the writer of the text and a character within the text; the audience, always potential, may be represented within the text or may involve the annotator in searching outside the text.

The *Direct links* attribute is shown separate from the annotation frame for the reason that it names another story *directly* whereas the other attributes provide only *indirect* links to other stories. In the proposed model, this direct link does not extend beyond the story base but it could do. The example shows Story *A* linking directly to *Stories B*, *C* and *D*.

The hypothetical author of *Story A* has linked it to *Stories C* and *D*. Reader 1 of *Story A* has linked it to *Story B* and Reader 2 of *Story A* has linked it to *Stories B* and *D*.

5.3 - Story attributes

In Chapter 2, various story structure theories were looked at. In Sections 5.3.1 and 5.3.2 the attributes comprising the proposed model are described and justified. It is important to understand that these are not considered to be the necessary and/or sufficient set. Simply, they are the things that can be known about a given story, interpretation, author or reader. The first thing to notice is that the model is generic. This is because it is regarded very important that every story is accommodated irrespective of style or content. The learning from the observation of GP-UK during Study 1 was that one cannot predict, and it would be futile to prescribe what a story is or should be.

5.3.1 - Story points

Points suggest themselves as a central organising principle for a number of reasons. First and foremost, it is argued that point structure is more inclusive; it will for example accommodate plot but not necessarily vice versa. We found in Chapter 4 that the plot of a story can be difficult to articulate and may anyway be uninteresting. On the other hand every story has point, a motivation for its narration, even if it is 'purely to entertain'. Also, from the review of the literature in Chapter 2 it is evident that there is some confusion as to the difference between 'story' and 'plot', and it is reasoned that this

confusion would also be felt by the annotator who is not expected to be knowledgeable in these matters. Secondly, what was gathered from Study 1 leads to the expectation that some though not all, stories will be of an anecdotal kind, i.e. pointed rather than plotted, in other words, where the plot and the story are likely to be one and the same. Thirdly, certain conceptions of plot as being independent of surrounding detail have been challenged by point structure and reader model theorists. Perhaps most importantly, though, the point has a unity that is more graspable, immediate, functional and meaningful than other plot-like contenders such as theme, gist and summary.

At the same time, it is not the plan to restrict the model and so there needs to be some assurance that point is broadly applicable. Much of the research on story points concentrates on oral stories e.g. Polanyi (1979), Labov, (1972). Many of the stories collected during Study 1, being deeply embedded in online discussions, resembled these most. These are the anecdotes. Not all oral stories with point are anecdotal; Rigney (1992) has shown that they can be crafted. These too were found during Study 1; some had journalistic qualities and others were highly poetic in style. Wilensky (1982, 1983), in suggesting story point as an alternative to the story grammar is concerned with story understanding, and that implies the absence of the story teller. Story point then is not just a property of oral presentation. Neither is it just a property of a particular kind of written story. Vipond and Hunt (1995) find that points can be present in the most literary of texts, and it just depends on how the reader chooses to approach the text: whether for information, for the plot or for the point.

Similarly as for plot, there is no provision in this model for theme, for the reason that this would suggest pre-existing categories, expectations and conformity. Themes are properly an emergent property of collections and nothing to do with individual stories, although it may be speculated that stories will cluster into various kinds of point suggested by Schank et al. (1982). In the proposed model, a changed story is a new one with its own point structure, rather than a variation on a plot or theme. On the other hand, the original story can be viewed in different ways by different audiences and each time, a new point structure may be suggested.

5.3.2 - Story attributes explained

The points, and in particular the main one, are regarded as principal among the attributes. For succinctness, a point comprises a single sentence. These and the other attributes are described in the following subsections.

5.3.2.1 - Main point

The function of this attribute is three-fold: it provides title, primary retrieval cue and something of what the story is about. The *Main point* of a story confers significance; it is the main reason for its telling in a given context. What precisely is allowed by the latter however is left relatively open in this model. Most likely, the author will self question:

'What is it that I want my audience to take from this?'

But readers too are allowed to suggest main points, and for them the self question may be:

'What is it that I choose to make of this?'

More ready-to-hand than other contenders like plot, theme and goal etc., its title status requires it to be mandatory, but only as far as the author is concerned. The reader can choose: to ignore the field entirely, to agree with the author (or a previous reader), to promote an existing *Other point*, or to make an entirely new suggestion. In all cases except the first, the salience of a story is increased, whether by increasing the weight of an existing title or alternative title, or by increasing the number of alternative titles.

5.3.2.2 - Other point

Just allowing a story to have a single point whether or not it is multiply interpretable, is as restrictive as insisting on a single multiply interpretable plot or theme. An author or reader may perceive any number of points. The difference between *Main point* and *Other point* is that the first is elevated to title or alternative title status depending on whether it was suggested at the time of authoring or subsequently.

This attribute might be called the 'but also' attribute for it is seldom that a story contains just one point. It allows the author to say:

'... but there is also the issue of...'

and it allows the reader to say:

Of course, one person's lesser point is another person's main point; when this happens the relevant *Other point* is promoted, attains alternative title status and the story's overall salience within the collection of stories is increased.

5.3.2.3 - Feature

This is something of a catchall category for any ideas or emotions experienced during the writing or reading of a story. The *Feature* category allows one to say that a given story features a particular trope, style or other subjective category, without classifying it as such. All features have equal standing; neither dichotomy nor ambiguity are issues: one may say 'comedy features' and 'tragedy features', and by that mean something quite different to 'tragicomedy features' or 'this is a tragicomedy'. The *Feature* attribute accumulates values in a way that is similar to Barthes' [1970] coding of lexias. Recall from Chapter 2 that these are blocks of signification that can range in content from words to sentences.

5.3.2.4 - Narrator

At first glance, *Narrator* may be regarded as a superfluous attribute for the reason that these stories are mainly experiential. As such, they are likely to be first person narrations, where the author casts his or her self in a protagonist role. But having this

attribute allows one to distinguish these narrations from others that are also possible. Multi-dimensionality on this attribute allows in addition, the capture of situations where there is more than one narrator, a potential indicator of stories within stories. The attribute is also multi-aspect, so for example, in a story that ranges over time the voice of the child self and the adult self might be heard. Then for the story that crosses domains, the voice of the personal self might vie with the voice of the professional self.

5.3.2.5 - Audience

Stories may be told with a particular *Audience* in mind and as soon as the target audience changes, the story itself is likely to change with it. It might be speculated that the subject matter be narrower and the language more specialised for stories that target only one audience.

5.3.2.6 - Characters

The characters of a story are either persons or personifications. Each character can also be multi-aspect, e.g. they might be known by a name and/or character traits.

Protagonist

Every story has at least one *Protagonist* or principal character. A protagonist can be portrayed in either a positive or negative light.

The principal character in a story is often the author. This attribute therefore offers clues as to whether the story is first or second hand. It is not foolproof however, for authors can of course cast themselves in protagonist roles regardless. On the other hand, the author can choose to distance themselves from the action by writing 'as if' from an observer point of view.

Antagonist
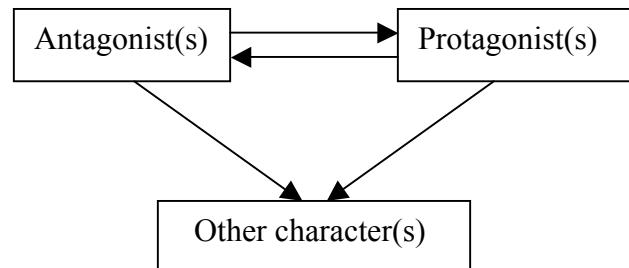
An *Antagonist* is an opposing principal character. Not all stories have antagonists but for those that do, the antagonist will be portrayed in an opposing light to that of the protagonist. Most stories have an antagonist because most stories involve a tension between two forces. The positive force naturally provides a protagonist and the negative force provides the antagonist.

Other character

One difference between principal and *Other character* is that principal characters are at least psychologically if not physically active. Other characters whether active or passive are usually less central. The reason for including this attribute is that it provides clues regarding a story's dynamics. In Figure 5.3 below, the other characters are passive but are nevertheless important to the story for they are subjected to the actions of the principal opposing characters.

Figure 5.3

Positions and interactions of character types

5.3.2.7 - Author

There can only be one *Author* of a given story but that author may be multi-aspect. That is to say, the author may or may not want to divulge their name or even their professional title but they may want to give away those things about their person that have some bearing on the story. Not all of these aspects bear on the writing of a given story. For the writer of stories *X* and *Y*, *Story X* might call upon aspects a^1 and a^2, whereas *Story Y* might call upon aspect a^3 in addition.

Even given that the recall of events is selective, for the author of a first hand telling, identification is with the interpretation of events that are to provide the subject matter. In the case of a second hand telling, the author is not interpreting and identifying with the recalled events but with a previous recounting of those events.

5.3.2.8 - Reader

It is possible to know something about a story by knowing who wrote it, but knowing who has read it can tell something too. Just as for author, it is useful to know those things about a reader that may have informed their interpretation. There can be any number of readers of a given story and each reader can be multi-aspect. For example, as well as supplying information as to who they are, the reader may after reflecting upon a given story want to express how they can relate to a character or situation.

The *Reader* is in a similar position to the author of second hand stories. For a given reader of stories *X* and *Y*, the interpretation and appreciation of *Story X* might bring into play the aspect set $[a^p, a^q, a^r]$ whereas *Story Y* might only require $[a^p, a^q]$.

5.3.2.9 - Reading and writing contexts

The *Time* and *Place* of reading and writing complete the list of attributes.

<u>Authoring time</u>

Knowing only that a story was written at a particular point in history can tell a lot about it. It is known for example that a latterly written story cannot have influenced a formerly written one. Also, a story written at a particular time will reflect the knowledge, attitudes and opinions held at that time.

Reading time

Similar things apply. Knowing that a story was read at particular points in history can tell something about its various interpretations. It may be inferred for example that a former reading has influenced a later one.

Authoring place

It is accepted that stories written in certain places will often reflect the cultures and concerns in those places. The study of GP-UK which has world-wide membership came across stories and potential stories that showed up differences in professional practice, attitudes towards health and disease and so on, these differences being due to population, economic and other differences.

Reading place

To a greater or lesser degree, similar things apply. Interpretation of a story may be influenced by where it was read. That is, it may be impossible to fully comprehend the events narrated but some kind of partial comprehension may be gained just by relocating those events closer to home. In this case, *Authoring* and *Reading place* refers to the geographic location where the author or reader lives and/or works.

5.3.2.10 - Related story

A *Related story* is an explicit link between stories that are considered to be directly related. The most obvious direct relationship is where one story is told in response to

another, but it may also be that a reader of a story makes a subjective similarity judgment between it and another story. In either case, the annotator may explain the relationship and if so the link will carry the explanation, i.e. the sense in which the two are related. These physical links make the story collection directly navigable; they also provide a default organization. In a fully operational, populated story-making system, this attribute's functionality would typically increase to enable stories to link to other, perhaps remote non-story objects. For now, it is enough to impress that a multi-perspective model allows a given story to generate new clusters and to join existing ones on this attribute alone.

5.4 - Attribute value selection

Although not essential to the model there is a mechanism for attribute value selection. It includes a number of selection lists on number of selection levels. The function of these lists is to ease the annotation process, not to restrict the annotator who may choose to bypass them entirely.

There are four levels: narratological, domain, story and annotator. *Narratological* selection lists contain those terms that might be applicable to any story regardless of domain. *Domain* selection lists contain those terms that might be applicable to stories within a given domain. *Story* selection lists contain those terms used to annotate a given story. *Annotator* selection lists provide user profiles that, by default, remain private to the individual. The only attributes which don't offer selection lists of any kind are the *Times*

because they are supplied by the system anyway. Attributes that don't offer selection lists above the story level are *Main point*, *Other point* and *Related story*. Briefly, the attribute selection lists are offered in the following fashion. An author in annotating a story for the first time will be offered lists at either the domain or narratological level depending on the attribute being considered. The returning author and the reader in annotating a previously annotated story will be offered lists at the story level too. The annotator is in addition, offered their personal profile: who they are and where they are, and trace: what they've annotated.

There are two narratological selection lists containing literary terms, these are *features* and *narrators*. There are also two domain selection lists, one for *people* and *groups* which is just a plural version of *people*, and one for *places*. In the evaluation prototype, there is only one domain: *general practice* but there could be several, each with its own vocabulary. These are the base attribute value selection lists. If during the annotation of a story, they are selected from, the selections will go towards constructing the story's attribute value list.

All narratological terms carry definitions (senses). It is these that are selected, not the terms themselves. If the annotator wants to use a term in a different sense, they must specify it, and it is this new sense that is transferred to the story selection list not the original.

In the case of domain terms, and the basic model, the sense is just the domain name. If the annotator wants to use a term in a different sense, they must specify it, and it is this new combination, not the original, that will transfer to the story selection list.

Table 5.1 below shows the basic values of the domain selection list for *people*. It lists all the professional roles typically encountered within general practice medicine. Main category roles are displayed in bold font and subcategory roles are displayed in regular font.

Table 5.1

A *People* selection list applicable to a general practice domain

Clinical Psychologist	**Nurse**	**Occupational Therapist**
Computer Operator	Community (District) Nurse	
Counsellor	Nurse Consultant	**Pharmacist**
Dietician	Continence Nurse	Community Pharmacist
Drugs Liaison	Diabetes Specialist Nurse	Practice Pharmacist
	Practice Nurse	
General Practitioner (GP)	Nurse Practitioner	**Physiotherapist**
Locum GP	Psychiatric Nurse (CPN)	**Podiatrist**
Principal GP	Public Health Nurse	**Practice Manager**
GP Registrar	Respiratory Specialist Nurse	**Receptionist**
	School Nurse	
Health Visitor	Senior Nurse Practitioner	
Fund Manager	Specialist Nurse	
	Stoma Nurse	
Midwife		
Community (District) Midwife		

The domain selection list for *places* contains all the Primary Care Trusts (PCTs) and Primary Care Groups (PCGs) within the United Kingdom. The narratological terms given in Tables 5.3 and 5.4 require more explanation. First however, Table 5.2

immediately below shows for each of three annotation modes: author, reader and author/reader (returning author), the selection lists applicable to each of the attributes comprising the proposed model. In the case of narralogical and domain selection lists, their respective names: *features*, *narrators*, *people* and *places* are given.

Table 5.2

Annotation mode, the attributes that apply and the level/s of selection list offered

Annotation Mode	Attribute	*Narrat-ological*	*Domain*	*Story*	*Annotator*
Author	Author	N	People$_{Author}$	N	Y
	Authoring time	N	N	N	N
	Authoring place	N	Places	N	Y
	Main point	N	N	N	N
	Other point	N	N	N	N
	Feature	Features	N	N	N
	Protagonist	N	People$_{Protagonist}$	N	N
	Antagonist	N	People$_{Antagonist}$	N	N
	Other character	N	People$_{OtherCharacter}$	N	N
	Narrator	Narrators	N	N	N
	Audience	N	Groups	N	N
	Related story	N	N	N	Y
Reader	Reader	N	People$_{Reader}$	Y	Y
	Reading time	N	N	N	N
	Reading place	N	Places	Y	Y
	Main point	N	N	Y	N
	Other point	N	N	Y	N
	Feature	Features	N	Y	N
	Protagonist	N	People$_{Protagonist}$	Y	N
	Antagonist	N	People$_{Antagonist}$	Y	N
	Other character	N	People$_{OtherCharacter}$	Y	N
	Narrator	Narrators	N	Y	N
	Audience	N	People$_{Audience}$	Y	N
	Related story	N	N	Y	Y
Author/ Reader	Reader	N	People$_{Reader}$	Y	Y
	Reading time	N	N	N	N
	Reading place	N	Places	Y	Y
	Main point	N	N	Y	N
	Other point	N	N	Y	N
	Feature	Features	N	Y	N
	Protagonist	N	People$_{Protagonist}$	Y	N
	Antagonist	N	People$_{Antagonist}$	Y	N
	Other character	N	People$_{OtherCharacter}$	Y	N
	Narrator	Narrators	N	Y	N
	Audience	N	People$_{Audience}$	Y	N
	Related story	N	N	Y	Y

The narratological *features* selection list is given in Table 5.3 below. It may look like a random selection of literary terms so it is necessary to explain why these were included and not others. The reasons are two-fold. Firstly, the proposed model positively encourages annotators to call a feature anything that comes to mind during their reading or writing of the text, and in order to impress that these are stories first and only potentially may contain information of a professional interest nature a range of descriptive literary terms is offered in order to encourage an appropriate response. In the same way it impresses on the potential author the sheer variety of genres, secondary structures, figurative and stylistic devices the model allows. That is, just those things discovered in the stories and potential stories of GP-UK in Study 1. Secondly, whether and what annotators select should tell something about how they regard this attribute and this will inform future refinement of the model. Because annotators are not expected to know these terms, their definitions, i.e. default senses, are included.

Table 5.3

Features selection list

Allegory	Fixed meaning behind the surface meaning
Autobiographical	Account of a person's own life
Biographical	Account of a life
Comedy	Generating lightness, amusement and laughter
Complex plot	Nonlinear and/or multiple plot
Disclosure	A change from ignorance to knowledge (anagnorisis)
Fact	Presented as having objective reality
Fantasy	Creation of make-believe worlds
Farce	Where it is the situation that is ludicrous rather than the characters
Hyperbole	Overstatement for effect
Irony	Where the actual is contrary to the expected situation, or where the intentional is contrary to the literal sense
Legend	Handed down from the past, regarded as historical although not verifiable
Meiosis	Understatement for effect
Metaphor	The suggestion of identity between literally dissimilar concepts
Metonymy	Replacing a concept with one of its attributes
Parable	Allegorical illustration of a moral or religious principle
Poetic	Having qualities associated with poetry
Satire	Scorn and ridicule of human vice and social folly
Simile	The suggestion of likeness between literally dissimilar concepts
Simple plot	Linear and/or single plot
Symbolism	Elusive meaning behind the surface meaning
Tragedy	Generating compassion and anxiety or pity and fear
Turning point	Reversal of the course of events (peripeteia)

In the evaluation prototype, a maximum of one built-in selection list attaches to any given attribute. In the case of *Narrator* a narratological selection list, shown in Table 5.4 below, was felt to be more appropriate than a domain one, even though it could be argued that for point-structured stories the narrator and author will be the same. This decision was made on the following grounds. Firstly, literary selection is more accommodating of stories that aren't necessarily firsthand experiential, and also stories that have more than one narrating aspect; secondly, it reinforces the narratological separation of the narrating

aspect from the story on the one hand and the author on the other. Again, annotators are not expected to know these terms, and so their definitions (default senses) are included. Neither are annotators restricted to list selection; they can make any and as many suggestions as they like in this field.

Table 5.4

Narrators selection list

First-person	The central character narrates the events they experience(d)
Omniscient	The narrator sees everything
Unintrusive	The reader is less aware of the narrator's persona
Intrusive	The reader is more aware of the narrator's persona
Unreliable	The narrator interprets events according to their beliefs and values

5.5 - Story annotation process

In Chapter 3 we developed an argument for a model that would support the activities of story-making which are the creation, comprehension, recall and telling of stories. The architecture described above goes some way towards supporting the creation and telling of stories but it does not support comprehension or recall, at least not adequately. The reason for this is that whereas creation and telling are activities mainly applicable to single stories, comprehension and recall are operations that call into play organised collections. Here the user is involved in such activities as querying, filtering, viewing and making similarity judgements.

5.5.1 - Attribute value weighting overview

The rationale for weighting individual attribute values is that they are all potential story pointers, and therefore weighted pointers will be more discriminatory than non-weighted ones. As detailed in the text, this dimensional weighting operates both within and between stories.

Weighting, in the form of frequencies, will be used in the analysis of user data, to show the degrees of agreement and disagreement between annotators. As we discuss in the chapter's conclusion and in Chapter 10, future work could investigate the technical requirements to implement automated story clustering based on such weighting.

5.5.1.1 - Consensus on annotation overview

The first kind of weighting is within-story; it records consensus. The weighting of an attribute value for a given story provides a means of discovering and measuring relative consensus among annotators regarding that story's markup. An attribute value weight is a function of the number of similar suggestions made in respect of a given attribute and given story and the number of annotation frames the story has accumulated. Consensus is where, taken overall, the attribute value weights are relatively high. To simplify matters, in the evaluation prototype a lexical similarity metric is used and dissimilar values are not taken into account. In the proposed model, if a term has sense, it is this that is weighted and not the term itself.

5.5.1.2 - Between-story weighting overview

In the evaluation prototype, between-story weighting applies only to attribute values that originated in narratological and domain lists. Given the story collection as a whole or a region of it, the weight is a function of the number of similar assignations and the total number of annotation frames within that space. Stories can be weighted with respect to a given attribute, set of attributes or overall.

The weighting that applies to the *Related story* dimension is slightly different.
Stories are positioned with respect to each other according to the number of direct relations between them so that smaller distances separate story pairs having many direct relations and greater distances separate story pairs having few direct relations. The greatest difference is where there are no direct relations.

Related story judgements are assumed to be asymmetrical in the case of author mark up, for the author is writing in partial response to one or more existing stories. Reader annotation is most simply regarded as symmetrical, that is one story is related to another equally in either direction. Although, since this attribute has an explanation facility, any such perceived directionality can be recorded here.

Because this relation is indicated by assigning the multi-instance attribute *Related story*, it is also dimensional and therefore contributes to within-story consensus judgements and between-story dimensional clustering.

5.5.2 – Reminder of the attributes

Table 5.5 below gives a brief description of each of the fifteen attributes comprising the story-annotation model. A particular annotation frame will offer just twelve of these depending on whether the annotator is author or reader.

Table 5.5

Attributes and their descriptions

Attribute	Description
Author	An aspect of the author's identity
Reader	An aspect of the reader's identity
Authoring time	Time and date of writing
Reading time	Time and date of reading
Authoring place	Geographic location of writing
Reading place	Geographic location of reading
Main point	Single sentence encapsulation of the main issue, situation or plot.
Other point	Single sentence encapsulation of another important point.
Feature	Single word or phrase for a concept or category evoked or contained.
Protagonist	A principal character or a trait of a principle character.
Antagonist	An opposing character or a trait of an opposing character.
Other character	A less central character or a trait of a less central character.
Narrator	A voice in the text delivering the story.
Audience	A potentially recipient group.
Related story	A story in the collection that is directly related.

Of these fifteen attributes, seven accept singular and eight accept multiple instance values. Two of the singular-instance and four of the multiple-instance attributes have potentially multiple aspects. Table 5.6 below shows this.

Table 5.6

Attributes, their instance and aspect potential

	Instance potential	**Aspect potential**
Author	Single	Multiple
Reader	Single	Multiple
Authoring time	Single	Single
Reading time	Single	Single
Authoring place	Single	Single
Reading place	Single	Single
Main point	Single	Single
Other point	Multiple	Single
Feature	Multiple	Single
Protagonist	Multiple	Multiple
Antagonist	Multiple	Multiple
Other character	Multiple	Multiple
Narrator	Multiple	Multiple
Audience	Multiple	Single
Related story	Multiple	Single

Multi-aspect attributes provide greater descriptive power. The simplest method of implementing it, which makes no distinction between instance and aspect, has a drawback: if say, the aspects of *Protagonist* are 'GP', 'Andy' and 'Marathon runner' there is nothing to indicate whether 'GP', 'Andy' and 'Marathon runner' apply to one or two or three *Protagonist/s*. Nevertheless, for the reason that it is simple, it is the one chosen for the implementation prototype described in Chapter 6.

5.6 - Concluding discussion

The primary focus of this chapter was to agree on what the requirements of a story annotation scheme are. We turned attention first to the schema itself, a means by which individuals are able to annotate a given story. We decided on narratological attributes

rather than domain specific ones for the reason that it should encourage stories and only stories but stories of all kinds. We decided to borrow from a variety of narratological models rather than just one for our chosen attribute set, and we did so for similar reasons: that to insist on a single structure would be restrictive especially in the light of what we learned from Study 1.

Although in Chapter 6 we aim to conduct the data analysis of Study 2 in accordance with the principles of Grounded Theory, the design of the study itself demands a model suitably implemented, and the very design of that model, is inescapably guided by hypotheses, just as much as by the results of a previous small-scale study where participants annotated stories just using pen and paper. One such hypothesis is that annotators will disagree with the author (and with each other) regarding the assignment of certain pairs of attributes. In particular, one interpreter's *Protagonist* may be another interpreter's *Antagonist*, and one interpreter's *Main point* may be another interpreter's *Other point*.

If proved, then it would be evidence of multiple-interpretation at work: story-makers would be made aware, if they were not already, that the story under their gaze had more than one reading. The concern is not really with deciphering author intent at all; story-making is less about peering through an authorial perspective, and more to do with bringing to it one's own, and recording that experience in the annotation.

Fundamental to the dimensional approach to story-making and the model proposed, is that an attribute value on one dimension can be lexically identical yet conceptually dissimilar to an attribute value on another dimension. Also, an attribute value on a given dimension of one story can be lexically identical yet conceptually dissimilar to an attribute value on the same dimension of another story. Even in the case of a single story and a single dimension we cannot say with certainty that two lexically identical attribute values are conceptually similar without consulting their respective senses. Consensus on annotation is where the senses, not the terms themselves, match. Making similarity judgements beyond this, whether within or between stories, requires more caution. Primarily, the best that can be hoped for is a support tool for story-making that permits clustering and re-clustering of stories via their annotation.

Conceptual similarity in the story-making model is dual aspect: it operates both within a given story (resemblance between its various interpretations) and between different stories (resemblance between their collective interpretations).

Story *X* and story *Y* may be dissimilar whether or not they share the same lexicon.

In this thesis, we will conduct the analysis of participants' within- and between-story similarity ratings manually. However, following the folksonomic tagging patterns now being observed on the social web, the more interpretations there are, the more likely it is that common annotations will emerge. Combined with algorithms to rate story-similarity depending on the different kinds of annotation supported by the model proposed in this

chapter, user-generated story annotation could serve as inputs to a "storybase" recommendation engine" in future work.

Chapter 6

The story annotations study

6.1 - Introduction

This chapter asks how story annotation capability can be delivered in a software tool. It will be answered in two ways. Firstly we describe an implementation prototype of the story-making model proposed in Chapter 5. We then describe a story annotation study, Study 2, for which the prototype was designed. Study 2 concerns a reader task of reading and annotating experiential stories narrated by various practitioners and allied professionals employed within the primary sector of the NHS health care system. The stories themselves are a representative cross-section of the fully qualifying stories resulting from Study 1, discussed in Chapter 4.

The study was conducted over two sessions and involved a single story base comprising twelve stories partitioned into four sets of three. In total there were twenty four volunteers. Sixteen academic researchers in knowledge media took part in the first session and the eight volunteers that took part in the second session were in medical or allied professions. This partitioning meant that each story was annotated at least four times during the first session and at least twice during the second. The only other difference between the two sessions was that participants in the second session were given limited access to the annotations made during the first session. This was to see whether and how the annotations made by the academics influenced the annotation behaviours of the medics. By way of example, all participants had immediate access to the partial annotations of an editor, the thesis author, who knew the origin of the stories.

The beginning of this chapter concentrates on the stories. In Section 6.2 there is a reminder from Chapter 4 of how each was categorised depending on the area of discussion the story was drawn from. We show how the twelve selected stories were distributed among the four sets and how the participants were assigned to the sets. At the end of Section 6.2, each of the chosen twelve is reproduced.

In Section 6.3, the aims of the study are given, then in Section 6.4, the architecture and operation of the graphical user interface that was designed specifically to facilitate it. The chapter ends with discussion in Section 6.5.

6.2 - The Stories

6.2.1 - Story categories

The twelve stories used in Study 2 represent a cross-section of the texts that qualified as stories under Gabriel's criteria. Recall from the Chapter 4 discussion of Study 1 that there were broadly, three discussion areas: *Professional*, *Social* and *Technological* and that the largest proportion of the fully qualifying stories came from the category *Professional* and that the smallest proportion came from the category *Technological*.

The categorisation of the stories depended not just on their immediate content but on the wider discussion. Table 6.1 lists the story titles, as suggested by the editor, and the

category of discussion the associated stories were judged to have been drawn from. Judgement was however qualitative and the best that can be said of these twelve is that each tends to one category to a greater degree than it tends to either other category. One question that might be asked is whether the category of discussion has any effect on readers' responses to the stories. For example, would the academics tend to relate more to the stories drawn from the social and technological threads than to those drawn from the professional threads? Another question is whether readers identify more relationships between stories drawn from the same discussion thread; the only stories forming such a pair in this collection are marked by (●). The Stories were placed into four sets (*a, b, c* and *d*) each containing three stories. Two of the sets (*a* and *c*) contain only professional stories, one set (*b*) contains a social one and another set (*d*) contains all three kinds.

Table 6.1

Sets *a*, *b*, *c* and *d*, and the chosen assignment of stories according to discourse category

Story No	Editor Suggested Story Title	Discussion area	Story Set
0001	Technology is not a panacea.	Professional	*a*
0005	The worry is that the classification label may last for all time.	Professional	
0009	All the news is about dissatisfaction but not all of us are dissatisfied.	Professional	
0002	A full emergency kit is essential up here.	Professional	*b*
0006	In retrospect, the diagnosis was there for all to see.	Social	
0010	Everyone felt better that we had played safe, though on this occasion it wasn't Meningitis.	Professional	
0003	Bulk prescription wastes money.	Professional	*c*
0007	Triage has no real function beyond allowing A&E to make performance claims. ●	Professional	
0011	PMs don't record the principle cause of death.	Professional	
0004	I try to use my experience to make the best choices I can today.	Social	*d*
0008	The Italian way of treating fractures is to overtreat – massively. ●	Professional	
0012	Throughout the NHS, IT knowledge is seen as a luxury and an optional extra.	Technological	

Each participant was assigned to one of the sets *a*, *b*, *c* or *d* as shown in Table 6.2. Those participants making up the first session are shown in regular font and those making up the second session are shown in bold font.

Table 6.2

Sets *a*, *b*, *c* and *d*, and the distribution of participants

A	b	c	d
4, 5, 12, 13, **17, 20**	7, 9, 11, 14, **18, 24**	2, 6, 15, 16, **21, 22**	1, 3, 8, 10, **19, 23**

6.2.2 - Story texts

Each of the following subsections displays each of three story texts that were assigned to the four sets *a*, *b*, *c* and *d*. The order in which they are shown is the same order that they appear in the user interface of the evaluation prototype. Indentation marks where stories are nested within stories, a method of display also used in the evaluation prototype.

6.2.2.1 - Set *a*

<u>Story 1</u>

[correspondent] said: But I was actually suggesting something that would solve your next problem…

Oh yes please [correspondent]!
  And also takes into account that little rise in creatinine that we are keeping an eye on, and patient's skin condition etc!

  Moving on……Then they will do away with us. The patient will come in, opening the door with their smart card. [T]hey gain access to the consulting room where they put their card in the slot, and line up relevant bits of their anatomy with the computer which draws blood etc (don't dwell on the etc – it['s] too much). [A]nd a draw[er] pops open with the medication, a print out of relevant advice, and the patient leaves.

But meantime, please work on that software!

Story 5

Yes,

mental health is a bitch, to have, to treat and to code. Anyone who has looked at the available codes will realise that they are a shambolic, ad hoc collection of indefinable (or non existent) conditions which do not lend themselves to any form of classification. I have less difficulty with coding the overtly psychotic problems than the "neurotic" ones. I mean, we're all neurotic right? (… just a few seconds silence too long). But isn't it part of the human condition to go through some time in your life

when you cannot hack it and need a bit of support? I'm often inspired by the honesty of patients and recognise that I have similar problems to them, but often lack their courage to admit them. Is it courage, or is it because they implicitly trust us? This is where the government have let us down badly; we can no longer guarantee confidentiality. After entering blunderbuss [R]ead codes for what can be quite subtle and varying degrees of depression, alcohol misuse, work stress, sexual dysfunction etc., it is a sobering thought that they may last for all time and that we cannot be sure who will read them in the future, nor can we assume that their agenda will be in the patient's interest. Should we obfuscate? Do we?

So, if anyone can write a little protocol which takes this stuff into consideration, could they please send me a copy? Mine has taken 20 years in practice to write; it is still kept in my head and is still changing.

Story 9

[…]
It might be better for any / many individuals to resign, but that's not the same as being good for general practice or the country.

It may be unusual but I basically like my job and like my patients. Many are people I've known for nearly 20 years, and many more (children) have only ever been registered with one doctor since the day they were born.

Some of us came into general practice to see a couple of generations grow and have families of their own. I'm lucky enough to be quite a long way down that road now,to work part time in two jobs both of which are challenging as well as mainly enjoyable, and to feel, as you do, that in general I'm waking in the morning to the job I set out to do.

It's obviously harder in many places compared to our middle of the road patch, but, rather like the situation with MMR where all the news is about the barely 10% of the population who've changed their behaviour, I can't help feeling that there is a silent majority who are just getting on every day, enjoying the enjoyable, coping with the

rest, and taking home a not unreasonable living.

That will surely end if the recruitment situation doesn't improve soon, but could easily be destroyed almost overnight by a bad contract or mass resignation.

6.2.2.2 - Set *b*

<u>Story 2</u>

Remote practice is a little different – in some of the places I cover, I *am* the ambulance service as well as the GP (some places in the Highlands and Islands still use pick up trucks etc. to reach a safe helicopter landing site).

I use the emergency kit on average once a week – I had a four person RTA with a helicopter and two land ambulances required last week (most of the Highland ambulances do not have paramedics – skill retention problems).

Some of the practice areas in Highland are in excess of 750 square miles with winding single track roads.

> I had a life-threatening asthmatic case a couple of winters ago where I had to drive on green lights for 1 hour to reach the patient, wait 20 minutes more for the land ambulance, which was called at the same time but was over 70 miles away, and then travel with the child to hospital (2.5 hours). Total time for one patient from time of call until I got back to base was 7 hours.

In the last 3 years I've:

~ used 2 intra-osseous infusions on shocked babies (one was only 4 weeks old) whilst waiting for RAF transport to arrive

~ used a surgical airway for a trapped crash victim who was unconscious, vomiting, decerebrate posturing and had trizmus (he surv[i]ved and I testified at his dangerous driving court case)

~ used 2 combitubes in medically in-extremis patients that I could not intubate

~ treated several acute MIs (1 on a mountain) that I had to treat and transport on myown to the helicopter landing site

~ seen several fallen climbers (some dead)

~ attended the usual assortment of motorcycle and car crashes

~ had a dead 16 year old ejected from a car crash at 80 miles an hour with 2 ?spinally injured passengers on an island with no ambulance and no hospital

~ been called to a hanging

~ had to cut my practice's multiply injured CPN and her 2 seriously injured children out of her car and 2 badly injured men out of the car that hit her (with the help of the fire service – but I was on the scene in the snow in 90 mile an hour winds for 1 hour before the first land ambulance reached us)

~ delivered a baby on a fixed wing ambulance transfer (no midwife)

~ had to deal with an ectopic pregnancy rupture 2.5 hours from hospital who had 3 litres of blood in her abdomen when they opened her

~ I used iv aminophylline for the first time in a while a couple of weeks ago for a life threatening asthmatic who was not responding to nebulisers

And various other odds and ends.

All 999 calls in many of the areas I cover are passed directly to the doctor (Inverness ambulance control have my mobile number on their board and someone knows where I am at all times when I'm on duty), I'm first on scene at most of the crashes I get called to (before even the police) – in >90% of 999 calls in the areas I cover I get there 20 minutes or more before a land or air ambulance.

It's never a dull moment.
[…]

Story 6

My first hamster died of Zn poisoning – it was before the fancy palaces you can buy for cages nowadays and we were poor students so we built a wonderful exciting new cage with multi-layers and ladders, ramps, wheels etc.
She loved it.
She particularly liked chewing on the bars.
Our economies had purchased non-galvanised zinc mesh….
The symptoms of zinc poisoning are hair loss, weight loss, skin problems, loss of balance…
Retrospectively I see she had them all.
The vet missed it – well he wasn't to know of the passion which had built a poisonous cage was he?

For a week we bathed her in special shampoo and dried her with the hair dryer – she hated it. Finally it became obvious we were losing the fight and a lot of money to the vet. Cinnamon – the first of many.
[…]

<div align="center">Story 10</div>

What about…

"Might be serious – not sure", but a reasonable question to ask a doctor, but 2 other children asleep upstairs and there's a 14 hour wait in A&E.

> Example from this weekend – 10 year old with short history of severe frontal headache and vomiting. Younger sibling attended a birthday party last week, from which two confirmed cases of Meningitis C have been traced. Ten year old was not vaccinated.

> I think that my opinion was warranted there – I saw the child within 10 minutes of the
> initial call. It was not meningitis, but everyone (including me) felt better that we had played safe.

In short there can be cases when GPs are the best placed to deal with out-of-hours medicine. However I would like to do my on-call [from] home, with triage by nurses of sufficient common sense and experience that I only get referred the 2 or 3 cases a day that really need my opinion.

6.2.2.3 - Set *c*

<div align="center">Story 3</div>

Local typical eprex story…all prescribed from hospital (transfer deal) via community pharmacies on P10HP because of some [VAT] issue.

> Patient given script for 3 month of new dose of 6000 units twice a week. Pharmacist enraged as [patient] has no facilities to store. Considers batch supplying in 1m lots but would leave him exposed to any price ncrease. Attempts to discuss with [hospital] re irrationality of this. No one interested (surprise!). After 6 [weeks hospital] reduce dose to 4000 units. [Hospital] asked if they want the remainder of unused [eprex] (about 1500 quids worth). No they couldn't possibly do that and offer no solution to unused dose except to junk, and suggest chemist dispenses new 2m script for 4000 unit doses. Chemist suggest could at least use the 6000 unit dose by discarding 1/3 of

each thus "only" wasting 600 quid. Yes suppose we could do that says hosp…..

Conclusion: responsible and cost conscious community pharmacist has wasted days telephoning various people trying to get some sense into this system, driving himself bonkers. Next time...Sod it, if they want to waste this kind of money why is it his problem…..

Story 7

As an interested observer, I have decided that triage nurses are the scam of the century, and that they are only there to allow A&E depts. to claim that all patients are seen within the first 24 hours.

Quite frankly it does not need a specific individual to work out when patients are really sick.

Nevertheless, it allows one to figure out the way to be seen quicker.
1. Always slip in the words 'central crushing pain'
2. Alternatively say 'difficulty in breathing'
3. Collapse in a supermarket: say nothing, and you will soon be on your way to being seen.
4. The really perverse way of being seen in a hospital is to refer yourself to a STD department (the only other hospital dept. that patients can get to see a doctor without a letter of referral[)]. Once inside the system, you mention what you want to be referred for, and you then become an internal referral, which gets dealt with more quickly.
    I know someone who needed a tonsillectomy, was offered a 2 year wait through ENT, but was operated on within 2 weeks after a STD clinic referral.
Of course there is always a risk that you will get a probe inserted in an uncomfortable place as they do their routine stuff, but as the saying goes no gain without pain.

Story 11

But PM doesn't solve the problem either.

I had a very demented old boy in EMI unit a week or so back. ?CVA ?Fit (had before) ?Fall with head injuring unwitnessed in the night[.] Big black eye and abrasion – not sent to hospital.

Died as expected 4 days later

Reported to coroner as injury

PM = Bronchopneumonia

No mention of dementia which was what really killed him.

6.2.2.4 - Set *d*

<u>Story 4</u>

I can relate to your 'choices'[.] It is a really profound train of thought –
what does 'choosing' mean. I have chosen to leave my practice at the end of the
month. Did I choose or did I feel I had no other option? Could I have negotiated what
I really wanted (have my cake and eat some of it?)

I too had no choice what I was called at school. I had to use the name I was given
when I was confirmed as I went to a convent school in the 'jungle' and the nuns
would not use our pagan names. Well if your dad was a prominent Moslem who
gave a fat donation to the school so his daughter could have the best education,
you could get away with refusing to answer unless they use your given name. So it
goes on.

However I find I can only go forward by not worrying about the choices I have made
and try to use my experience to make the best choices I can today.

Good luck with the sewing of name tapes. That was one task I could choose not to do as
my mother offered to do them.

<u>Story 8</u>

My son, aged 14 then, fell and fractured his radius when we were on holiday in
Sicily. The emergency doctor was very quick, XR immediately. At the same time an
old lady of 80+ also had a Colles so we all smiled, shook our heads and
commiserated, language barriers excepted.

Richard was taken away into the plaster room and we were not allowed in! Just as
well because when he emerged, plastered up to his shoulder (they do things
differently in Italy) he informed us that his fracture had been reduced without any
anaesthetic. The old lady was next, she had a badly displaced fracture, and the
screams as they reduced her without anaesthetic were pathetic to hear.

Then they would not let us out, because of the massively overtreated fracture with
this hugely redundant object. I stayed in this grim and noisy ward, until we made our
escape the next afternoon. That's another story! The old lady was in the ward next the
8 bedder we were in and she moaned very noisily all night.

We should have guessed.

When my daughter fractured her neck of humerus, again in Italy, some years

earlier she ended up with a plaster from shoulder down which was totally redundant. I cut it off back at the resort and we cobbled a collar and cuff. Don't know what the cleaning ladies made of the mumm[y's] cast behind the door, it encased half her trunk as well. As the German orthopaedic surgeon at the resort we accosted with the films over lunch said, the Italians like their stucco.

Medical practice seems highly variable. You would think there would be some common standard for simple problems.

<u>Story 12</u>

My wife has had trouble receiving documents from her trust, sent to all consultants, because the enormous header (with all the To…s) made the email system fall over. The problem is that, throughout the NHS, IT knowledge is seen as a luxury and an optional extra. Typically a secretary who can just about cope with typing letters on her PC is sent on a 2 hour course to learn about email and the web and then left to get on with it, with no back up (hospital IT departments being grossly under-resourced – mind you we don't have any in house IT in GP land).

I subscribe to a FilmFour mailing list and they once made the same mistake, treating me to an impressively large list with the private email addresses of all their list members. At least they were apologetic about it.

6.3 - Aims and objective of the study

The objective of the study is to reveal participants' collective and individual annotation behaviours and the results of those behaviours.

The study would allow participants:

(1) to annotate a minimum of three stories on both indexical and relational dimensions

(2) to navigate indexical screens in a purely forwards direction or backwards too

(3) to agree with the editor regarding an annotation value or partial value on an indexical dimension

(4) in the second session to knowingly agree with participants in the first session

regarding an annotation value or partial value on an indexical dimension

(5) to read any remaining stories after having completed their initial indexical annotation

(6) to unknowingly agree with those in the same session regarding an annotation

value or partial value on an indexical or relational dimension

(7) to browse and select from lists on only certain indexical and relational dimensions.

(8) to save indexical and relational annotations *now* or to suspend saving until *later*

(9) to review or decline to review their saved indexical annotations.

It is mainly for practical reasons that the first group is non-medical. A fairly large number of volunteers were required and it was also desirable that they be observed closely as they performed the task. But there is another reason, and that is to make the claim that the audience potential for stories is wide, and quite probably, wider than for other kinds of specialist discourse. This is also the reason why for the second session, volunteers from a cross-section of medical professions were recruited.

The task is designed as a phased study for the following reasons: to allow each participant to have equal opportunity to know what the task involves; to allow participants to focus on just one task part at a time, and to try to ensure that all task parts are attempted.

The minimum number of stories that a participant may annotate is a designated set of three and the maximum is twelve. What stories comprise the mandatory set depends on

which quarter of the hour, the program is accessed. In the first quarter, stories 1, 5 and 9 will be highlighted; in the second quarter, it is stories 2, 6 and 10 and so on. In other words, a given set will be annotated the required number of times if four of the participants of Session 1, the researchers, and two of the participants of Session 2, the medics, begin the experiment within the relevant quarter of the hour. This equal coverage of the stories will make discernable any differences and similarities either within or between sets of annotators and the stories they are assigned to.

The system will not allow entry into Phase 2 until Phase 1 is complete and that means that at least the mandatory set has been annotated and those annotations have been saved. Phase 2 enables the participant to read the remaining stories not annotated during Phase 1. Phase 3 presents the participant in turn with each of the stories they annotated during Phase 1 and asks them to relate to it as a reader and also to relate the annotated focal story to any of the other 11 in the collection. It is presumed that after reading the non-annotated stories they will know enough about them to suggest possible relations between these and the now more familiar annotated stories.

For the indexical dimensions but not the relational ones, help is given in the form of editor suggestions. These stand in for authorial suggestions and also the suggestions of previous readers' as predicted by the model. The reason why participants in Session 2 are given optional access to the suggestions of those in Session 1 is to see first whether they will want to view, and even select from, suggestions that again stand in for the story-specific attribute value lists described in Chapter 5.

Conversely, the reason why no explicit help is given for the relational dimensions is that it provides an opportunity to see whether annotators are willing to make suggestions entirely of their own, and if so, what form these suggestions might take and whether it is preferred to the style of annotation allowed by Phase 1 where the annotator's approach may be more passive.

6.4 - Task architecture and implementation

6.4.1 - Task architecture

The structure of the user interface for the evaluation prototype is given below. Bold boxes represent screens and the other boxes represent either modes or conditions. Comments can be made anywhere except the Entry and Exit screens.

Figure 6.1

Phases 1 and 4 (Select a story and index it)

```
  ┌──────────┐                              ┌──────────┐
  │ Enter    │                              │ Exit     │
  │ Phase 1  │                              │ Phase 4  │
  └──────────┘                              └──────────┘

            ┌──────────┐      ┌──────────┐
            │ Stories  │      │ Indexing │
            │ Found    │      │ Saved    │
            └──────────┘      └──────────┘

┌──────────┐   ┌──────────┐   ┌──────────┐
│ Guide (1)│ ← │ Print /  │ → │ Phases   │ ←
│          │   │ View     │   │ 1 and 4  │
└──────────┘   └──────────┘   └──────────┘
     ↕
┌──────────┐                  ┌──────────┐
│ Guide (2)│                  │ Index    │
│          │                  │ Points   │
└──────────┘                  └──────────┘

                              ┌──────────┐
                              │ Index    │
                              │ Features │
                              └──────────┘
                                              ┌──────────┐
                              ┌──────────┐    │ Save Now │
                              │ Index    │    │ Save Later│
                              │ Characters│   └──────────┘
                              └──────────┘

                              ┌──────────┐
                              │ Index    │
                              │ Audiences│
                              │ & Narrators│
                              └──────────┘
```
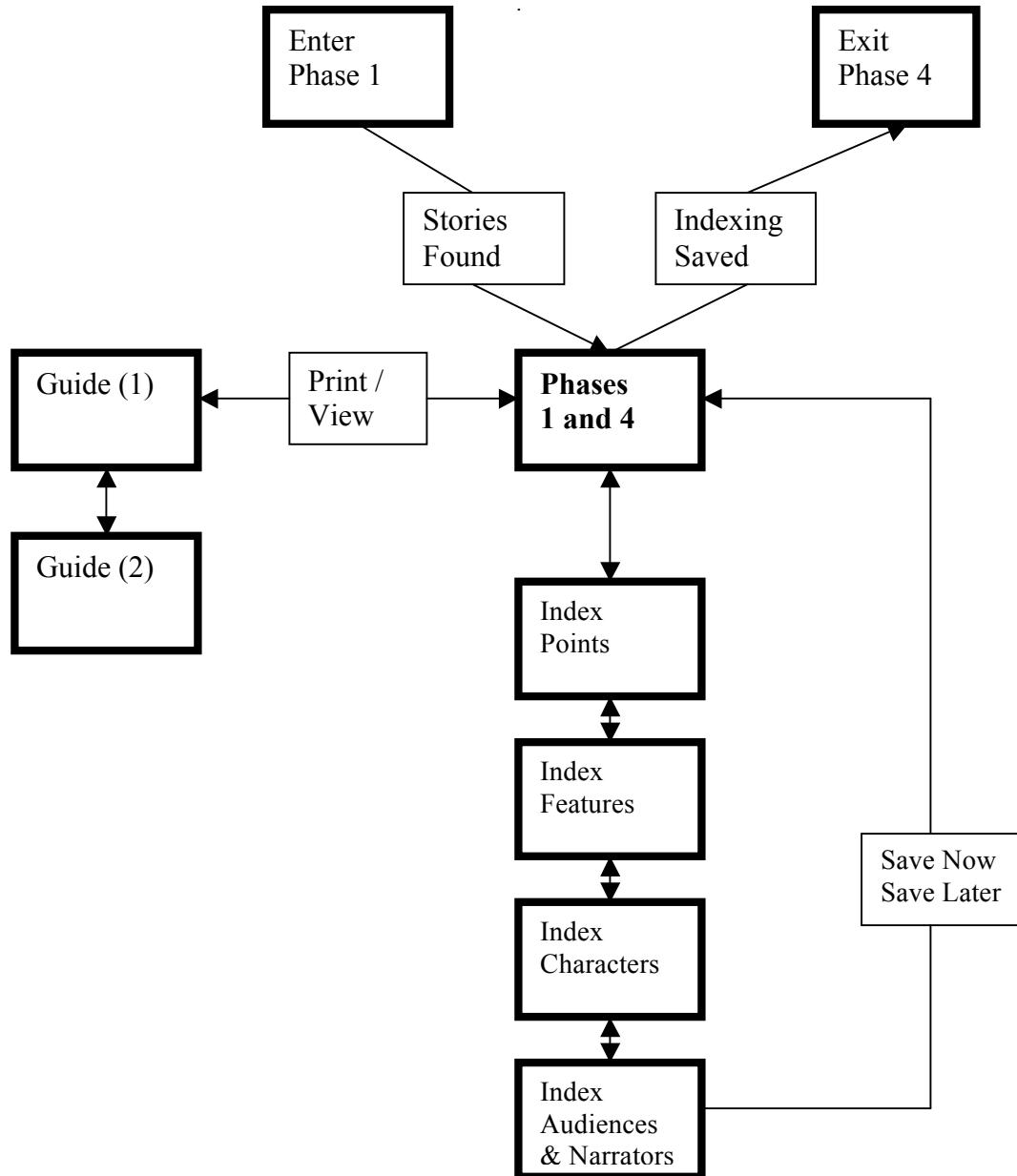
Figure 6.2

Phase 2 (Read non-indexed stories)

```
┌──────────┐        ┌────────┐        ┌──────────┐
│          │◄──     │Print / │   ──►  │          │◄──────────┐
│ Guide (1)│        │ View   │        │ Phase 2  │           │
│          │        └────────┘        │          │           │
└──────────┘                          └──────────┘           │
     ▲▼                                    │                  │
┌──────────┐                               ▼                  │
│          │                          ┌──────────┐     ┌──────────┐
│ Guide (2)│                          │Read Story│─────│ Read     │
│          │                          │          │     │ cycle    │
└──────────┘                          └──────────┘     │ complete │
                                                       └──────────┘
```
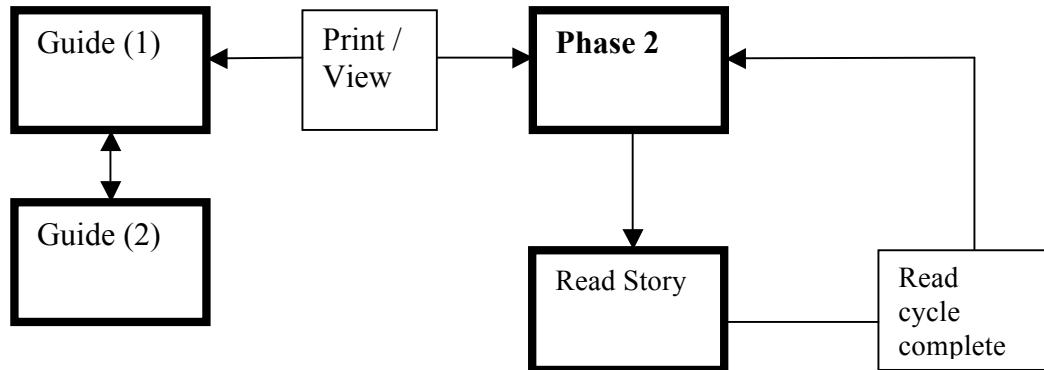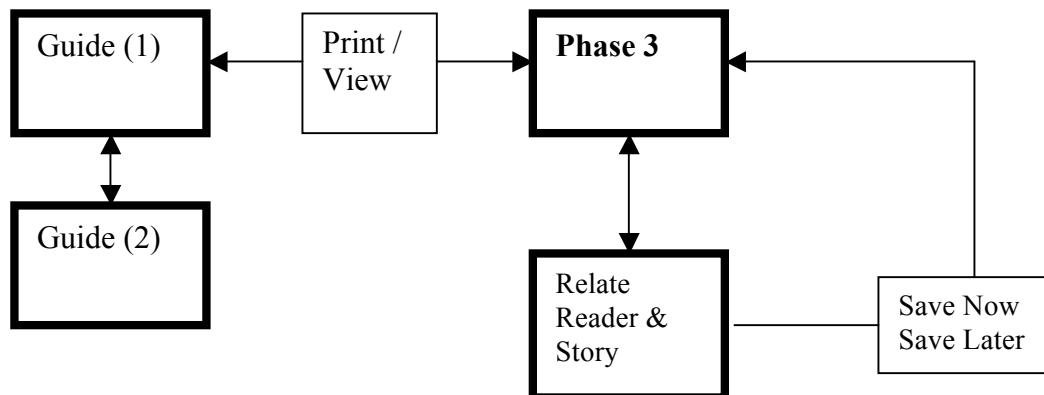
Figure 6.3

Phase 3 (Select an indexed story and relate it)

```
┌──────────┐        ┌────────┐        ┌──────────┐
│          │◄──     │Print / │   ──►  │          │◄──────────┐
│ Guide (1)│        │ View   │        │ Phase 3  │           │
│          │        └────────┘        │          │           │
└──────────┘                          └──────────┘           │
     ▲▼                                    ▲▼                 │
┌──────────┐                          ┌──────────┐     ┌──────────┐
│          │                          │ Relate   │     │          │
│ Guide (2)│                          │ Reader & │─────│ Save Now │
│          │                          │ Story    │     │ Save Later│
└──────────┘                          └──────────┘     └──────────┘
```

6.4.2 - The evaluation prototype

Because it allows very rapid screen design and its standard graphical user interface objects provide all the functionality that is required for the study, Visual Basic is chosen for the evaluation prototype. It is then just a matter of adding appropriate event handling and data structures. Colour is used to assist participants' navigation within the various screens: mauve for list selection, blue for the story being annotated and the editor's annotation, pink for the reader's annotation, turquoise for the other stories in the collection and green to instruct, guide and obtain additional comment from the participant. To minimise the amount of guidance that needs to be permanently visible, it is decided to make some of it available through tooltips. The contents of the tooltips and the screens themselves are shown in Section 6.4.2.2 below in the same sequence as they would typically be encountered by participants. Before that in Section 6.4.2.1 the task process is introduced.

6.4.2 1 - The task process

Indexing applies to eight attributes and relating applies to two. One attribute gives the participant entry to the main screen: *Reading place*

For each of the stories, the following indexical attributes are presented in the order given, although they needn't be tackled in this sequence:

Main point and *Other point/s*

Feature/s

Protagonist/s, *Antagonist/s* and *Other character/s*

Narrator/s and *Audience/s*

For each of the stories, the following relational attributes are presented in the order given, although again, the sequence in which they are tackled may vary:

Reader relation/s and *Story relation/s*

Attribute value selection lists as described in Chapter 5 are provided for every attribute except *Main point*, *Other point/s* and *Story relation/s*. To differentiate these from the lists containing the suggestions of previous readers, we will henceforth refer to the former as menus.

There are four phases to the task; the last is optional. Owing to the number of indexical attributes, Phases 1 and 4 span four screens: *Story points*, *Story features*, *Story characters* and *Story narrators & audiences*.

In Phase 1 the annotator selects a story title from the main screen and is presented with the story together with its authoring context and is also presented with the attributes on which it can be indexed. Each of these attributes was previously indexed by an editor and the editor's values are shown. The annotator can agree or disagree with each of the editor's suggestions by ticking or unticking the associated box. In the case of Points, the

annotator can choose to promote and/or demote the editor's suggestions. For all attributes, the annotator may also suggest values, either by selecting from the relevant selection lists and/or by entering their own in the text box provided. All indexical attributes except *Main point* are multi-value and so every suggestion including direct agreement, list selection and free input drops into an amendable list. The annotator repeats the process three or more times depending on the number of stories they wish to annotate. Indexing for each story can be saved at any time and as soon as all outstanding saves have been made, entry to Phase 2 is made available.

In Phase 2 the annotator is presented with each of the stories that they haven't indexed, for reading. They can choose to remain in Phase 2 for as long or as little as they like.

In Phase 3 the annotator again selects story titles from the main page but this time only those indexed during Phase 1 are available. On each selection the story along with the authorial context is presented to them as before; the annotator may relate the story to them personally and may also identify direct relationships between the story and any of the others in the collection. These non-focal stories can be selected for display one by one alongside the focal story. A menu is offered for the *Reader relation/s*. For the *Story relation/s*, annotators can in addition to stating a relationship, provide an explanation. These explanations are modifiable and the relations themselves can be removed prior to saving. Annotators can save their suggestions for focal story relations at any time but cannot proceed beyond Phase 3 until they have done so.

In Phase 4 the annotator may follow any or all of their original links to the indexical annotation screens and make changes if they wish.
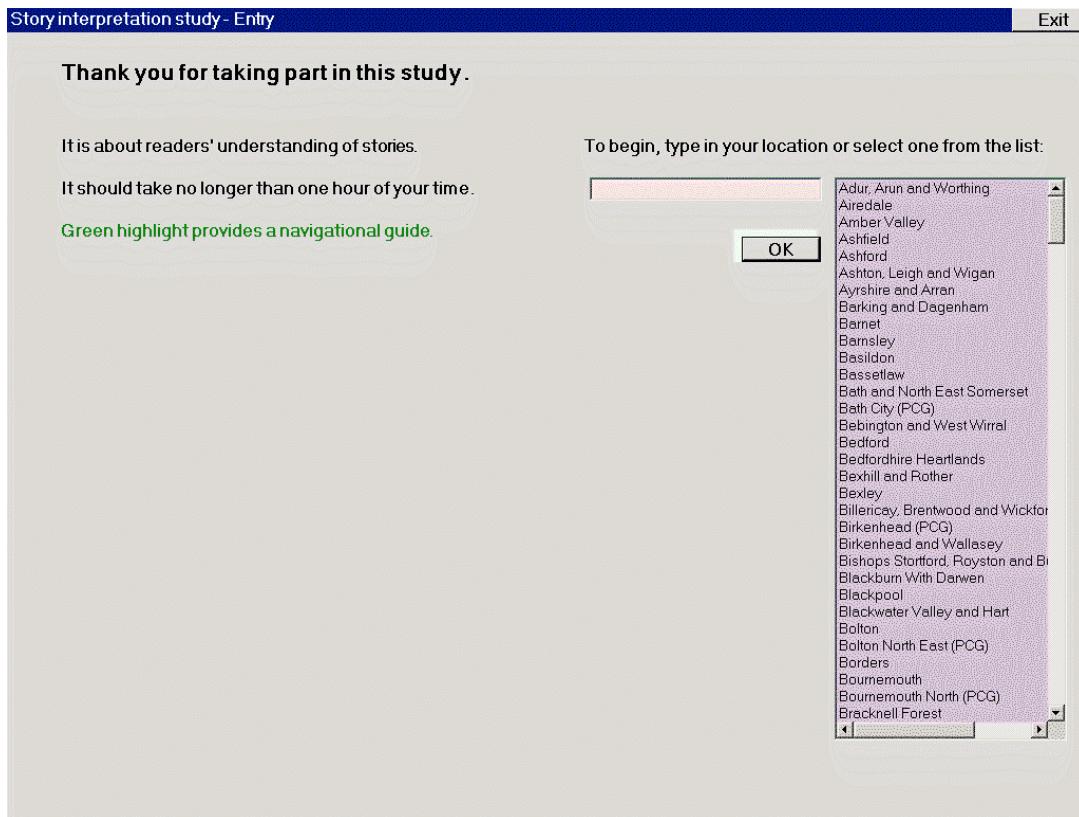
6.4.2.2 - The screens

Now that the task process has been introduced, some of the screens will be displayed and more detail can be given regarding their operation and navigation. Owing to their number, not all the screens are shown. We choose to show those screens seen either by participants of both sessions or by participants of the second session. The only difference in appearance of screens dedicated to particular sessions is the presence or absence of certain localised objects. Several of the images below show the main screen in various states but its intermediate states are not shown.

6.4.2.2.1 - Entry page: Sessions 1 and 2

Figure 6.4

Entry page: Sessions 1 and 2

This is the first screen that all participants see. It thanks them for taking part, gives a hint of what the study is about and how long they can expect to spend on the task. It also introduces them to the colour green as being their navigational guide. They are asked to enter their location in the pink text box or to select a location from the mauve menu which contains all the UK Primary Care Trusts (PCTs) and Groups (PCGs). Positioning the input field alongside the menu gives a clue to the kind of input value expected but does not restrict the participant to menu selection. The OK button has a green shadow to indicate that its activation will take them to the next screen. The exit button at the top

right corner allows them to abandon the task altogether should they wish; the next exit button they will see will be after they have completed the mandatory parts of the task.

6.4.2.2.2 - Main introductory page: Sessions 1 and 2

Figure 6.5

Main introductory page: Sessions 1 and 2

The main screen will become very familiar to participants. They will return to it several times. It briefly tells them the four phases of the task. It tells them which stories they are required to index and relate, and which stories they are required to read. They can print the three mandatory stories or the entire collection if they choose to. To encourage

participants to visit the *Guide*, the invitation and the link to it stand out in green. The *Guide* can also be printed. The fourth phase offers reassurance that changes can be made regarding decisions arrived at during the first phase.

The titles of the mandatory stories, in this case from *set c*, appear bold to stand out from the remaining nine titles. The lower left corner of the screen holds a key to the colour scheme and the lower right corner holds a comment box. Hovering over the comment box causes the tooltip to advise *"Click here to expand the comment box"*. If they expand the comment box the tooltip will read *"Enter any comments in the comment box"*.

6.4.2.2.3 - Page 1 of guide: Sessions 1 and 2

Figure 6.6

Page 1 of guide: Sessions 1 and 2

The *Guide* contains two pages. This first page shows the four phases of the task. The first and the third phase will involve participants in annotating the stories with respect to eight and two attributes respectively. A brief description of each is given; because during these task phases, attribute descriptions always display alongside attribute names it is not necessary that they are remembered from the guide. Participants are advised that during phase 2, the remaining stories only require skim reading and that this is in preparation for phase 3. Finally the guide explains that Phase 4 is optional and that it applies only to the participants' indexing during phase 1. The links at the lower right of

the screen enable the participant to return to the main screen or proceed to page 2 of the guide.

6.4.2.2.4 - Page 2 of guide: Sessions 1 and 2

Figure 6.7

Page 2 of guide: Sessions 1 and 2

Guide (2)

General advice:

> Be spontaneous.

> Try not to let the editor's indexing overly influence your own.

> A story has 8 indexical attributes and 2 relational attributes; all except *Main Point* accept multiple suggestions.

> All suggestions are optional - make as many or as few as you wish.

> Your suggestions don't have to correspond to the story text.

> If a fitting suggestion is not in a selection list, then enter your own - don't force fit.

> Click on a selection list entry for a tooltip definition (applies only to Feature and Narrator).

> There is no such thing as an incorrect suggestion.

> You can suspend indexing / relating a story; all input will be preserved until you decide to return.

> If you suspend indexing during Phase 1, make sure you save it before beginning Phase 2.

> If you suspend indexing during Phase 4, make sure you save it before finally exiting.

> Relations saved during phase 3 cannot be revisited.

> Indexing saved during phase 1 can be revisited and modified during phase 4.

> Your thoughts (on any aspect of this study) will be appreciated; please leave them in the comment boxes provided.

Comment Box

Top <--

This second page of the *Guide* just offers general advice regarding participants' task approach, freedoms and restrictions on how they choose to annotate, navigate and progress the task. It also advises where tooltip definitions apply.

6.4.2.2.5 - Phases 1 and 4 - Main & Other Point: Session 2

Figure 6.8

Phases 1 and 4 - Main & Other Point: Session 2

Participants arrive at this first annotation screen which is for the annotation of story points by following one of the story title links on the main screen. It is here that the story is displayed for the first time. Following the colour convention explained on the main screen, the story itself and the editor's indexing appear in blue text boxes, the participants' suggestions will insert in pink text boxes and the background colour of the attribute explanations is green.

Author information appears at the top of the screen and to protect anonymity, has been changed in three respects: time of authoring, place of authoring and authorial name. Less identifying information, such as their professional role, has not been changed.

At the lower right corner of the screen are two links; these link *Back* to the main screen and forward to the *Next* annotation screen. The participant can navigate these links before, during or after completing this task part.

The only difference between this screen which is for participants of Session 2 and the screen for participants of Session 1 is the presence of the button in the upper right labelled *Readers' suggested points*.

The participant can suggest at most, one main point of the story. They can do this by agreeing with the editor, promoting one of the editor's *Other points*, typing in their own *Main point* or by agreeing with a previous reader.

The participant can suggest any number of other points. They can do this by agreeing with one or more of the editor's suggestions, demoting the editor's *Main point*, typing their own *Other points* and activating "Add" and by agreeing with previous readers. Since all *Other point* suggestions, regardless of source, are transferred to the list of *Other points* below the input field, suggestions can be removed by highlighting them and activating "Remove". Likewise, unticking an editor suggestion effectively removes it from the list.

The screen image below shows what lays behind the button *Readers' suggested points*. The list box is mauve to indicate that it is selectable. The participant selects from the list by highlighting the relevant point and ticking either *Main* or *Other*. The selection is then transferred to the chosen pink region. Activating *Hide* causes the selection list to disappear from view and the button *Readers' suggested points* to be restored.

Figure 6.9

Phases 1 and 4 - Main & Other Point: Session 2

6.4.2.2.6 - Phases 1 and 4 - Feature: Session 2

Figure 6.10

Phases 1 and 4 - Feature: Session 2

The Features screen is arrived at either via the link *Next* on the Points screen or the link *Back* on the Characters screen. Again, the screen shown here is the one that participants of Session 2 will see. So that participants do not have to remember either story content or author information, these consistently display in the upper third of all annotation screens. Incidentally, the story and author information on display here is different to that displayed in Section 6.4.2.5 above and is different again to that displayed from Section 6.4.2.7 onwards. Of course, what participants actually see here is the story they most recently selected from the main screen. The participant can suggest any number of

features. They can do this by agreeing with one or more of the editor's suggestions, typing their own *Features* and activating "Add", agreeing with previous readers and by selecting from the menu located between the pink input field and the pink output list. All suggestions, regardless of source, transfer to this list and can be removed from it by highlighting and activating "Remove". Unticking an editor suggestion also effectively removes it from the list.

It was explained in Chapter 5 that for the proposed annotation model, a given annotation value is a triad of lexical, assignation and sense aspects. The evaluation prototype fully accommodates two of these. Suggestions can be lexically identical but differ in their assignation. The evaluation prototype only partially accommodates the sense aspect. It does this on attributes where literary menus apply, i.e. *Features* and *Narrators*. Every term in the menu has an associated tooltip definition accessed by highlighting the term. The definition remains visible until and unless another term in the list is highlighted. To select from this menu the participant must tick the highlighted item; if subsequently unticked, the item will be removed from the pink list box. There is no facility in the evaluation prototype for altering the sense of a required term. The terms and definitions that participants see are the same as those presented in Chapter 5.

The screen image below shows *Readers' suggested Features* uncovered. The participant selects from the list by highlighting the relevant feature, thereby transferring the item to the pink list box. The list can be hidden from view by activating *Hide*.

Figure 6.11

Phases 1 and 4 - Feature: Session 2

6.4.2.2.7 - Phases 1 and 4 - Character: Session 2

Figure 6.12

Phases 1 and 4 - Character: Session 2

The Characters screen is arrived at either via the link *Next* on the Features screen or the link *Back* on the Narrators & Audiences screen. The Characters screen allows annotation on three character types: *Protagonist*, *Antagonist* and *Other Characters*. There are three identical menus in the centre of the screen which attach to each of the three types. The menus implement *People* described in Chapter 5. The participant can suggest any number of characters. They can do this by agreeing with the editor's suggestions, typing their own *Protagonist*, *Antagonist* and *Other Character* and activating "Add", selecting from the menus and by agreeing with previous readers. All suggestions, regardless of

source, transfer to the respective pink list box from where they can subsequently be removed by highlighting and activating "Remove". Unticking an editor suggestion also effectively removes it from the list.

The screen image below shows *Readers' suggested Characters* uncovered. The participant selects from the required list type by highlighting an item; the item then transfers to the relevant pink list box. The lists can be hidden from view by activating *Hide*.

Figure 6.13

Phases 1 and 4 - Character: Session 2

6.4.2.2.8 - Phases 1 and 4 – Narrator & Audience: Session 2

Figure 6.14

Phases 1 and 4 - Narrator & Audience: Session 2

The Narrators & Audiences screen is arrived at via the link *Next* on the Characters screen. This screen is different to the previous three, firstly because it is where the participant must eventually save their indexing of the current story thus far and secondly because the two menus are of different type. The domain menu attached to the attribute *Audiences* is an implementation of *Groups* which was introduced in Chapter 5 as a plural version of *People*. The literary menu attached to *Narrators* enables this attribute to be regarded as aspectual. The editor's suggestions serve to reinforce the dual nature of this attribute as describing a style of narration on the one hand and as identifying the one who

narrates on the other. Chapter five introduced the literary terms and provided definitions. The definitions are implemented as tooltips which are viewed by highlighting the term. The definition remains visible until and unless another term is highlighted.

For both attributes the participant can make as many or as few suggestions as they wish. They can do this by agreeing with the editor's suggestions, typing their own suggestions and activating "Add", agreeing with previous readers and by selecting from the menus. To select from the literary menu requires that the highlighted term is ticked; the item transfers to the pink list box associated with *Narrators* where subsequent unticking causes its removal. Selection from the domain menu just requires that the item is highlighted; it transfers to the pink list box associated with *Audiences*. All suggestions, regardless of source, after being transferred to their respective pink output list can be removed by highlighting and activating "Remove". Another way to remove a previously agreed editor suggestion is by unticking.

The screen image below shows *Readers' suggestions* uncovered. The participant selects from the required list type by highlighting an item; the item then transfers to the relevant pink list box. The lists can be hidden from view by activating *Hide*.

Two navigations are possible from this screen. The participant can follow the link *Back* to Characters or they can return to the main screen via either *Save now* or *Save later*. *Save later* gives the participant time to consider their indexing of the current story and allows them to make changes to it. In the meantime they can index other stories.

However until they eventually activate *Save now* on all three mandatory stories they will be prevented from accessing Phase 2. The appearance of the story title links on the main screen will indicate whether there is any unsaved annotation.

Figure 6.15

Phases 1 and 4 - Narrator & Audience: Session 2

6.4.2.2.9 - Phase 1/2: Sessions 1 and 2

Figure 6.16

Phase 1/2: Sessions 1 and 2

This screen marks a transition stage between Phase 1 and Phase 2. Provided that all the annotation so far has been saved, the main screen will appear as shown to participants of both sessions. The indexed story titles will no longer be navigable, a new object with a green shadow will have made an appearance centre screen and the instructions above the story titles will have changed. The instructions advise participants that they can either continue indexing within Phase 1 by following optional story title links or they can leave Phase 1 and enter Phase 2 by activating *Read now?*

6.4.2.2.10 - Phase 2: Sessions 1 and 2

Figure 6.17

Phase 2: Sessions 1 and 2

To participants of both sessions the Phase 2 screen appears as shown. The position and size of the story display window are the same as before but its background colour has changed to indicate that the task has changed. On entry, the story on display is always the first story on the list of story titles that the participant has not indexed during Phase 1. If they hover over the story window a tooltip will explain *"This story is one that you have not indexed"*. The story titles that appear in italics are stories that the participant has indexed.

Phase 2 is optional and participants can return to the main screen at any time by activating *Stop reading*. The green shadow is to draw attention to the button labelled *Read next*. Activation of this button causes the next non italicised story to display in the window, the story title pointer to move to the associated title and the associated author information to display at the top of the screen.

When the participant has read to the end of the list the green shadow moves to behind the button *Stop reading*. If at this point the participant chooses to reactivate *Read next* the story title pointer will move back to the top of the list and the cycle will repeat but the green shadow will remain behind the button *Stop reading*.

6.4.2.2.11 - Phase 2/3: Sessions 1 and 2

Figure 6.18

Phase 2/3: Sessions 1 and 2

This screen marks a transition stage between Phase 2 and Phase 3. To participants of both sessions the main screen will appear as shown. Another object will have appeared centre screen and the green shadow will have moved to behind it. The instructions above the story titles will also have changed; they now advise participants that they can continue reading by reactivating *Read again?* or they can leave Phase 2 and enter Phase 3 by activating *Relate now?*

6.4.2.2.12 - Phase 3: Sessions 1 and 2

Figure 6.19

Phase 3: Sessions 1 and 2

To participants of both sessions the main screen will appear as shown. The only story title links that are navigable once more are those of the stories indexed during Phase 1.

6.4.2.2.13 - Phase 3 - Relate: Sessions 1 and 2

Figure 6.20

Phase 3 - Relate: Sessions 1 and 2

Because participants of the second session are not given access to the annotations of participants of the first session, the relational attributes screen will appear as shown. Notice too the absence of editor suggestions. The upper story display window has reverted to its original blue background colour that earlier signified indexing; we refer to this as the focal story. A second story display window has a background colour that earlier signified reading; we refer to this as the non-focal story. The *Related Reader* attribute allows participants to relate the focal story to their selves. They can do so by selecting from the menu of domain terms, thereby suggesting an aspect of professional

identify; they can also or alternatively type in the text box and activate "Add". All suggestions will transfer to the pink list box labelled "Reader Identity" from which they can be subsequently removed by activating "Remove".

This screen is more complicated than previous screens and so more tooltip advice is offered. Hovering over the focal story causes a tooltip question: *"Can you relate this story to yourself as reader? Can you relate this story to the green story below?"*. Hovering over the *Related Reader* guidance text causes a tooltip prompt: *"E.g., professional, familial and social interest perspectives"*. Hovering over the *Related Reader* input field causes a tooltip prompt: *"E.g. Specialist nurse, Parent, Traveller"*.

Turning attention to the *Related Story* attribute, participants can change the contents of the non-focal story display window by selecting a story title from the mauve list of story titles. Hovering over this list causes a tooltip prompt: *"Select a story from this box and it will be displayed"*. Hovering over the non-focal story itself causes a tooltip question: *"Can you relate this story to the blue story above?"*. If participants feel they can answer 'yes' to this question they can activate the button labelled *Related?* The screen image below shows the appearance of the screen after the activation of *Related?* Notice that the mauve list of story titles has been disabled. Hovering over the pink input field causes a tooltip prompt: *"Say here, why the green story and the blue story are directly related"*. Hovering over either button causes the respective tooltip prompts: *"Press if the two stories on display ARE related"* and *"Press if the two stories on display are NOT related"*. The latter is currently visible in the screen image. Activating either button

causes two events: an enabling of the mauve list of story titles and the emptying of the non-focal story window. If the participant activates the button labelled *Relate*, then a third event occurs: the title of the selected story removes from the mauve list and inserts in the pink list underneath. Hovering over this pink list now causes a tooltip explanation: *"The blue story is directly related to the stories in this list"*. Amendment of an explanation of a relation is achieved by first highlighting the associated story title in the pink list; this causes the non-focal story and the explanation of the relation to redisplay, allowing the amendment to be made. Similarly, the removal of a story title from the pink list and its reinstatement in the mauve list is achieved by first highlighting it, then activating *Unrelate*.

Participants return to the main screen via either *Save now* or *Save later*. Choosing *Save now* prevents them from reviewing or amending their relational indexing of the focal story. If they choose *Save later* they can return to this screen before, during and after relating the other mandatory stories. They must however eventually *Save now* on all the stories they have chosen to annotate in order to proceed to Phase 4 or to the final exit.

Figure 6.21

Phase 3 - Relate: Sessions 1 and 2

6.4.2.2.14 - Phase 4: Sessions 1 and 2

Figure 6.22

Phase 4: Sessions 1 and 2

For participants of either session the main screen has this appearance once the participant has saved their relational annotation. A new object will have made an appearance centre screen. The green shadow behind it will indicate that Phase 4 is entirely optional. On the other hand the enabled links will invite them to review their Phase 1 indexing. If they choose the latter they will be temporarily prevented from exiting until they have saved any reviewed indexing whether or not they have made changes to it.

6.4.2.2.15 - Exit: Sessions 1 and 2

Figure 6.23

Exit: Sessions 1 and 2

This screen is what participants see after activating Exit. They are thanked for taking part in the study. The instructions allow for the possibility that volunteers will be working from remote locations and without a mediator present. They need to be shown where the annotation data will be stored on their machine and they need to know where to send it.

6.5 - Concluding discussion

Our analysis of the data collected during the course of Study 2 begins in the next chapter and so we will here provide a summary reminder of the case we have constructed so far.

In Chapter 4 we looked for and found evidence of storytelling among a particular group of people within a particular forum. The people were mainly from medical and allied professions. The forum was an on-line discussion group set up to facilitate general discourse on topics connected with medicine. Researchers such as Hunter (1986, 1991) and Greenhalgh and Hurwitz (1998) had already shown that medical professionals engage in storytelling but we wanted to know whether they do so outside of their immediate working environment firstly, using a widely available internet technology secondly, and how satisfactory that technology would be thirdly.

We stressed in Chapter 4 that we would only proceed with our enquiry if the evidence was found. The reason for choosing particularly strict criteria for judging storyness was to be certain of our claim that the story can flourish in an online environment even given the possible inhibiting factors. These include the storyteller's lack of control over audience membership and the absence of cues an immediate audience would give.

The stories and potential stories were judged to be of such high and promising quality that attention turned to finding ways to achieve greater levels of support than basic online discussion facilities currently provide, not just for storytelling but for the creation, understanding and recall of stories (Harvey and Martin, 1995).

This problem is addressed in Chapter 5 where we develop the idea of a storymaking resource. It is based on a narratological schema for story annotation that we believe would support both authors and readers. For the author it can assist composition, facilitate retrieval and offer a means of providing clues to the intended interpretation of the story. For the reader it can offer a means of reply, alternative interpretations and assist retrieval.

There are a number of reasons why we decided upon a narratolgical schema rather than one that takes account of the discussion domain. There are also a number of reasons why the schema we propose borrows from several narratological models rather than basing it on any one in particular. In the first case we cannot predict who the authors and readers will be or the nature of the stories that will gradually populate the storybase. In the second case we regard important that the resource should not be restrictive of the kind of stories it allows. What has remained paramount is the knowledge that among all forms of communication, the story is recognised as being highly accessible, appropriate and effective; our objective in the first case was to preserve these qualities and in the second case, to add value.

The present chapter, concerned with how story annotation capability can be delivered in a software tool, describes a prototype implementation of the resource; it also describes Study 2, an evaluation of the prototype. The main challenge in designing the evaluation prototype was to incorporate as much of the model as possible whilst at the same time, keeping the task as simple as possible for the participants. Compromises had to be made.

Realising that the number of volunteers that could be observed closely would be relatively few, it was decided to restrict the size of the storybase to 12 as this would ensure equal coverage of the stories in respect of their reading. To ensure equal coverage in respect of their annotation, volunteers were assigned to a particular set of stories depending on the o'clock they began the task. Mindful that as well as mastering the schema volunteers must also be able to find their way around a perhaps bewildering number of screens, the attributes were presented in a particular sequence of screens and volunteers would be restricted to forward and backward movement through the sequence or part sequence. To structure and simplify the task we divided story annotation into two mandatory phases and one optional phase. The two mandatory phases separated attributes that had mainly to do with the story from those that had mainly to do with the reader. The effect of these compromises will be to restrict the kind of data that can be collected; we can learn little about volunteers' choices regarding story or navigation because we have restricted them.

We were more successful in incorporating other parts of the model. To approximate the presence of an author's annotation we included suggestions of an editor; to approximate the presence of previous readers' annotations we included in the second session the annotations made by participants of the first session. Volunteers were assigned to either session depending on whether they were academic researchers in knowledge media or were in medical and allied professions. We will be able to collect data on such things as the ease or difficulty the academics experience in annotating stories of a medical nature, and whether medics will consult the annotations of non medics. Because stories were

assigned to one of four sets, depending on the kind of discourse the story was drawn from, we will be able to collect data on whether this difference is reflected in their annotation.

Chapter 7

Data analysis

7.1 - Introduction

This chapter begins to address the question of how untrained users use the story annotation tool that we designed in Chapter 5 and developed in Chapter 6. To this end, this chapter and the following two will, as well as reporting various analyses, bring together, four separate sets of data:

(1) task and the recordings data which is respectively separated into

    (a) user interface interaction behaviours

    (b) and task behaviours

(2) annotation values provided by participants

(3) questionnaire filled in on completion.

The present chapter is concerned with the results of the task including those from the questionnaire. Chapter 8 begins to look at the video recordings data. We have chosen to separate out from this, data that is primarily concerned with navigating and interacting with the user interface, which is presented in the associated technical report (Kwiat, 2009). Though not central to the thesis it is still important as far as valuably informing future narratological user interface and toolkit design. Chapter 9 looks in more qualitative terms at participants' detailed task behaviours.

In all, 24 volunteers participated in the study. They were randomly divided into four groups of six volunteers where each group was assigned to a specific set of stories: *a*, *b*, *c* and *d*. In addition, the volunteers were divided among two sessions which for ease of reference are distinguished by font colour. In the first (regular) session, 16 non-medical professionals (academic researchers in knowledge media) had access to only to the editor's indexing. In the second (blue) session, 8 medical professionals had in addition, access to the collective indexing of the previous session where it differed from the editor's. With regard to story relations however, the second session of medics were, like the first session of researchers, on their own.

The same questionnaire was presented to all participants. Section 7.2 examines the collective scores and the individual ratings. Subsequently, the ratings data will be associated with both the story annotation results data here and the process data in Chapter 9. It is in this qualitative data chapter that the comments on the questionnaires will be presented.

In this chapter, presentation of the story annotations data begins in Section 7.3. The annotations data is divided into the indexical attribute values gathered during Phases 1 and 4 and the relational attribute values gathered during Phase 3. In Section 7.3.1 the indexical values are presented story by story and set by set. Section 7.3.2 then presents for each of the four sets, the relative distribution of the various modes of suggestion: explicit agreement, list selection and free text input. Some interesting categories to have

emerged from the indexical results are discussed in Section 7.3.3. Then in Section 7.4 the values for the two relational attributes are presented over two separate subsections.

Important throughout this chapter and beyond are participants' judgements regarding aspects of the task including the relative ease and difficulty they experience in suggesting attribute values. However, displayed as they are alongside participants' individual suggestions, they don't reveal collective behaviour patterns. Finally therefore, in Section 7.5 the question is asked whether judgements regarding ease and difficulty do reflect in at least the numbers of suggestions participants make.

7.2 - Collective scores on the questionnaire

Every participant that began the task also completed it and then went on to answer the two-page questionnaire reproduced in Figure 7.1.

Figure 7.1

The Questionnaire

Readers' Story Interpretations[†]

Indexing the stories was generally (choose one)

	Very easy	[ ]	Quite difficult	[ ]
	Easy	[ ]	Difficult	[ ]
Additional comment	Quite easy	[ ]	Very difficult	[ ]

Relating the stories was generally (choose one)

	Very easy	[ ]	Quite difficult	[ ]
	Easy	[ ]	Difficult	[ ]
Additional comment	Quite easy	[ ]	Very difficult	[ ]

Indexing and Relating was generally (choose one)

	Very unrestricted	[ ]	Quite restricted	[ ]
	Unrestricted	[ ]	Restricted	[ ]
Additional comment	Quite unrestricted	[ ]	Very restricted	[ ]

The selection lists were generally (choose one)

	Very useful	[ ]
	Useful	[ ]
Additional comment	Quite useful	[ ]

Easiest suggestions generally, were for (choose one or more)

Main point	[ ]
Other points	[ ]
Features	[ ]
Protagonists	[ ]
Antagonists	[ ]
Other characters	[ ]
Narrators	[ ]
Audiences	[ ]
Relating the reader	[ ]
Relating other stories	[ ]

Additional comment

Hardest suggestions generally, were for (choose one or more)

Main point	[ ]
Other points	[ ]
Features	[ ]
Protagonists	[ ]
Antagonists	[ ]
Other characters	[ ]
Narrators	[ ]
Audiences	[ ]
Relating the reader	[ ]
Relating other stories	[ ]

Additional comment

[†] Return the completed questionnaire as an email attachment to J.H.Kwiat@open.ac.uk

All participants in the second session filled in the questionnaire immediately on task completion and with the mediator present. Most participants in the first session filled in the questionnaire within hours of completing the task and in all cases, without the mediator present. The questions and their collective answers are reproduced below in three simple graphs. Participants could if they wished provide additional comment after

each question; these comments are saved for Chapter 9. Each participant was assigned to one of four sets of stories (*a*, *b*, *c* and *d*) and these have been colour coded (black, dark grey, light grey and white). Individual participants are identified by a number where 1 to 16 identifies the non-medics and 17 to 24, the medics. In the figures below, regular font is used for the non-medics and italic font is used for the medics.

Figure 7.2

"Indexing / Relating the stories was generally (choose one)*"*
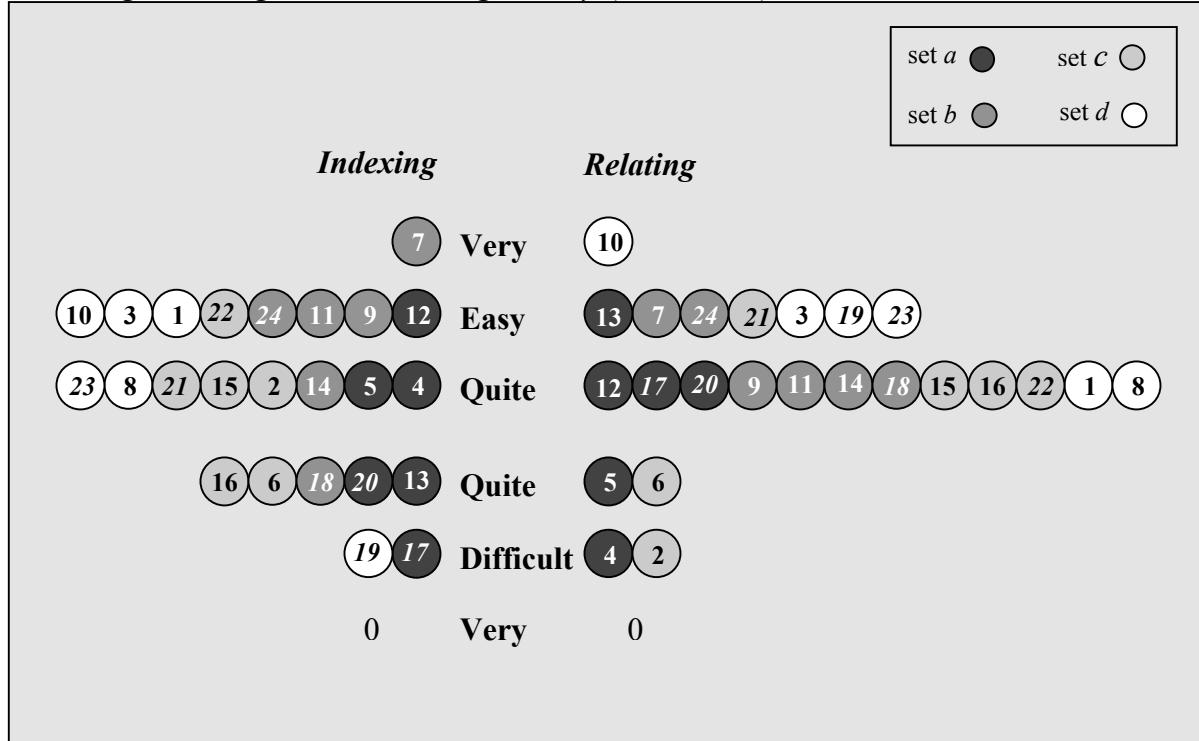
Figure 7.2 shows which participants found each of the two main areas of the task easy and difficult and the degree of ease and difficulty.

One quarter of participants found both task areas (indexing or relating) equally easy or difficult. Just over half found the two task areas just one step apart in ease or difficulty. The remainder placed two or more steps between.

For both task areas, the most popular ratings are 'Quite Easy' and 'Easy' but for the indexing task, opinion is more evenly spread. No one found either task area to be 'Very Difficult' although one sixth of participants regarded either indexing or relating as 'Difficult'. One participant judged both task parts as 'Quite Difficult'. In terms of sets, participants assigned to *b* and *d* found the task easier than those assigned to *a* and *c*. Recall that stories in *sets a* and *c* were originally drawn from predominantly 'professional' discourse whilst those in *sets b* and *d* were drawn from more mixed discourse.

Figure 7.3

"Indexing and relating was generally (choose one)
& The selection lists were generally (choose one)"
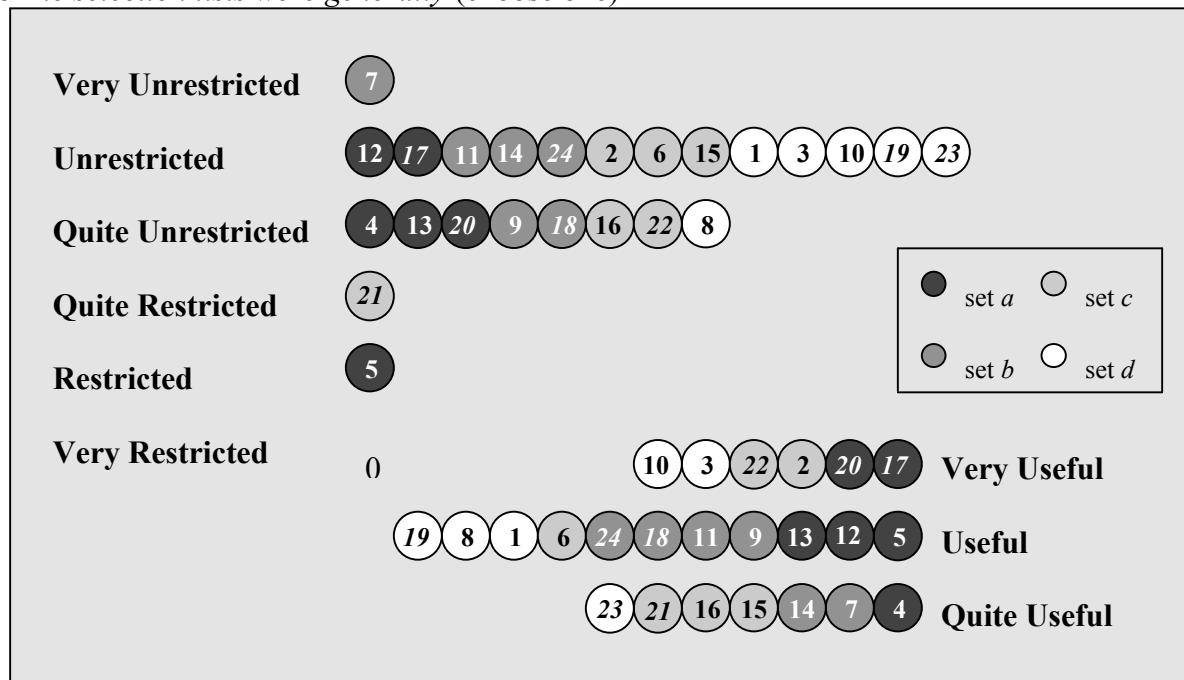
Figure 7.3 shows how restricted participants felt both indexing and relating the stories; it also shows how useful they found the selection lists. We might expect that a participant

who felt 'Very Unrestricted' would rely less on selection lists, only finding them 'Quite Useful'. We might also expect that a participant who felt 'Unrestricted' would regard the selection lists as 'Useful' or 'Very Useful'. Most interesting are the participants who felt either 'Restricted' or 'Quite Un/Restricted'. Why might this be? If it is because the selection lists are limited in their range of values, then we would expect them to be only be 'Quite Useful'. Yet only thirty percent of these participants regarded them in this way; the remaining seventy percent regarded them as either 'Useful' or 'Very Useful'.

Figure 7.4

"Easiest / Hardest suggestions generally, were for (choose one or more)"
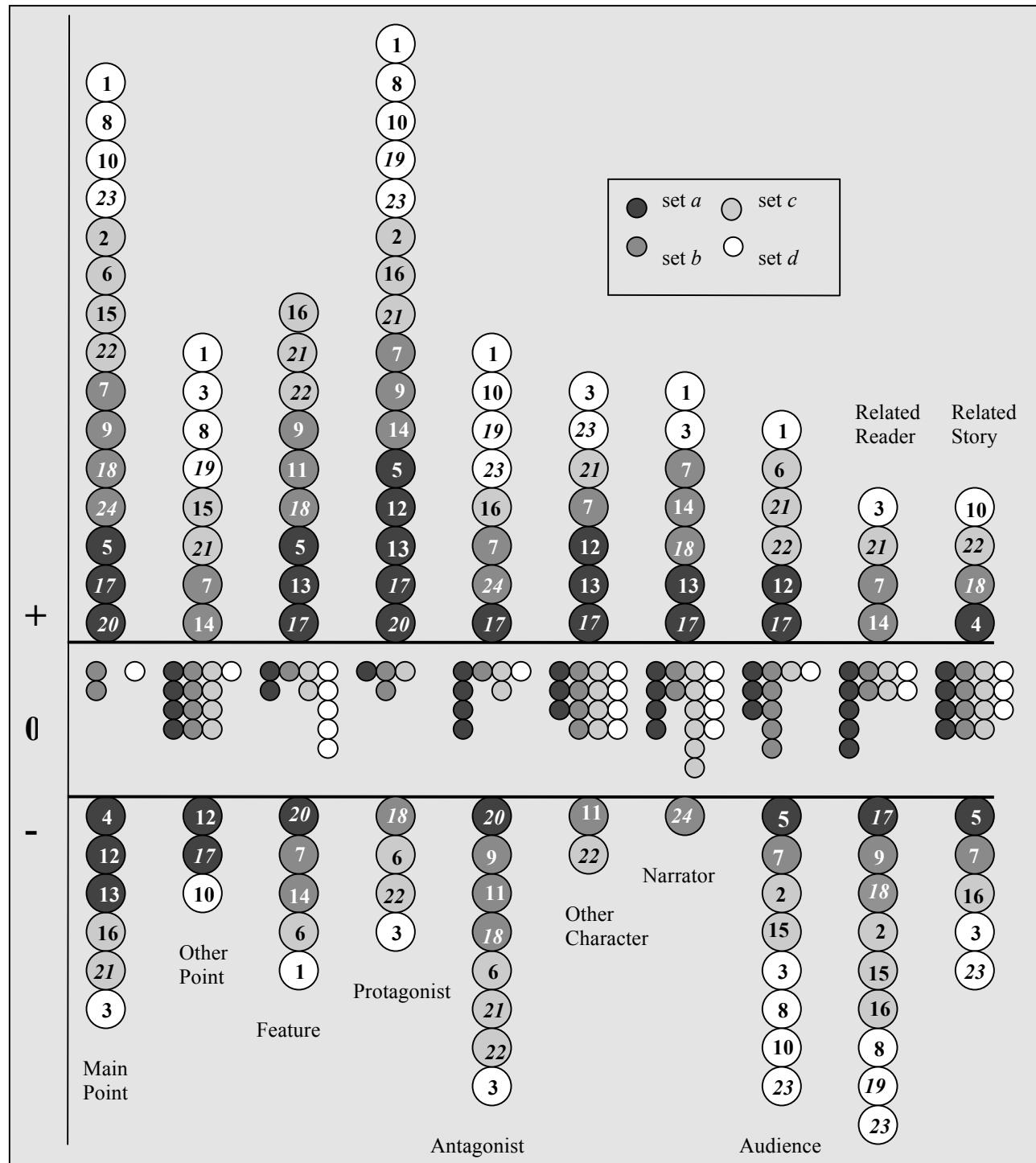
Figure 7.4 identifies those participants who judged individual attributes as being either particularly easy or particularly difficult. Attributes that were not regarded as being particularly easy or difficult are represented by the piles in the centre. According to the questionnaire data, the easiest attribute to suggest values for is *Protagonist* and the most difficult is *Related Reader*. The ease and difficulty scoring for *Antagonist* is exactly balanced. *Audience* and *Related Story* are almost in balance with slightly more participants judging them to be on the difficult side. What is puzzling is where participants' judgements of the attributes comprising a task part are inconsistent with their ratings for the task part as shown in Figure 7.2.

Noticeably, the *Main* and *Other Point*, usually considered easy are regarded as difficult by a large proportion of group *a*. Notice too the otherwise rarity for this group to regard attributes as difficult. It certainly appears that participants assigned to the same set respond with greater similarity than do participants assigned to different sets.

7.3 - Suggestions of indexical values

This section is concerned with three things: the indexing annotations themselves in Section 7.3.1, the mode of indexical annotation in Section 7.3.2 and the indexical annotation patterns in Section 7.3.3.

7.3.1 - A story by story representation of the indexical values

The frames below show the indexing of each of the twelve stories, presented in order of set. Author details (changed for privacy reasons) permanently displayed along with the story for annotators to refer to are reproduced at the top of each frame. Also at the top of each frame is an abbreviated reminder of participants' responses to relevant questionnaire parts. Responses to the indexing phases can range from Very Easy (VE) to Very Difficult (VD), the degree of restriction felt can range from Very Unrestricted (VU) to Very Restricted (VR) and the relative usefulness of the selection lists can range from Very Useful (VU) to Quite Useful (QU). Table 7.1 provides a reminder of what these abbreviations are.

Table 7.1

Abbreviations

	Rating	**Rating Abbreviated**	**Rating**	**Rating Abbreviated**
Ease and Difficulty	Very Easy	VE	Very Difficult	VD
	Quite Easy	QE	Quite Difficult	QD
	Easy	E	Difficult	D
Restriction Felt	Very Unrestricted	VU	Very Restricted	VR
	Unrestricted	U	Restricted	R
	Quite Unrestricted	QU	Quite Restricted	QR
Selection List Utility	Very Useful	VU		
	Useful	U		
	Quite Useful	QU		

Within the frame itself the editor's indexing is shown in bold plain font and selection list terms are shown in square brackets. With the exception of Story 8 which was indexed seven times because one participant optionally annotated it, the ratings span six columns, one for each participant in the set. If a participant suggested the value displayed to the

left, the relevant cell records an 'e', 'd' or 'n' according to how they rated the attribute in the leftmost column: 'easy', 'difficult' or 'neither'.

The objective of the study is to reveal participants' collective and individual annotation behaviours and the results of those behaviours.

More qualitative aspects of attribute value suggestion will be addressed in Chapter 9. Meanwhile, the makeup of these frames likewise results from our grounded theory approach: let the data speak. Firstly, the relative lengths of the frames and frame partitions provide an indication of which stories and which attributes triggered relatively many and few suggestions. The frames also show the degrees to which participants did the following:

(1) suggested selection list terms (these values are shown in square brackets)

(2) agreed with the editor (the values and ratings are shown in bold)

(3) made unique suggestions (all ratings cells except the annotator's are empty)

(4) agreed unknowingly with each other (two or more ratings cells are non-empty)

Participants 17 to 24, having access to previous annotators' suggestions could in addition have:

(5) chosen to make suggestions not made before (the values are shown in blue font)

(6) explicitly agreed with previous annotators (the values and ratings are shown in italic)

The ratings column therefore provides an indication, not including the editor's contribution, of the frequency with which each value is suggested in respect of a given

story, and it is in this order that the values are listed. A sample of a partial frame is given

in Figure 7.5 to provide a key to the information contained.

Figure 7.5

Deciphering the indexing frame

Story Identifier (1 – 12)
Author Details (with any potentially identifying detail changed)

Participant identifer →

Attribute	Value	Attribute Ratings					
		p1	p2	p3	p4	p5	p6
Main point	**Throughout the NHS, IT knowledge is seen as a luxury and an optional extra.**	e		e	e	n	
	No IT training/support for NHS staff.						e
	The NHS makes use of tools without providing its employees with the necessary knowledge.		d				
Other point	**Hospital IT departments are grossly under-resourced.**	e	e	e	d	e	n
	Here in GP Land, in-house IT is anyway non-existent.	e	e	e	d	e	n
	No IT training/support for NHS staff.	e					
	The NHS is less professional even of an entertainment or cultural organisation.		e				
	My wife has trouble receiving documents from her trust.				d		
	The 2 hour course to equip staff with IT skills.					e	
Feature	**no support**	d	n	n	n	n	n
	problem	d	n		n	n	n
	barely coping	d	n			n	
	2 hour course		n			n	n
	long list		n				n
	presumption		n				n
	[fact]				n	n	n
	apology		n				
	bureaucracy			n			n
	under-resourced				n		n
	[simple plot]			n			
	[satire]			n			
	[hyperbole]						n
	[disclosure]						n
	ironic (sic)						n
	work tools			n			
	(IT) knowledge			n			
	bad manners			n			
	unprofessionalism			n			
	2004					n	
	time restraints on staff						n
	General Practitioner (GP)					n	
Audience	**GP discussion group**	e	d	d	d		d
	[Computer Operators]					n	d
	[Counsellors]			d			
	[General Practitioners (GPs)]						d
	[Fund Managers]						d
	Acquaintance		d				

bold suggestion = initially made by the editor

italic suggestion = a medic explicitly agrees with a non-medic

blue suggestion = made by a medic, not by a non-medic

square brackets = the suggestion is a selection list term

non-medic rating

medic rating

Particiant 1 rates the Audience attribute as 'easy'

Particiant 5 rates the Audience attribute as neither 'difficult' nor 'easy'

Particiant 6 rates the Audience attribute as 'difficult'

Table 7.2

The annotation of Set a (stories from professional discourse)

	Participant Task Ratings					
Participant	4	5	12	13	17	20
Indexing: Ease & difficulty	QE	QE	E	QD	D	QD
Restriction felt generally	QU	R	U	QU	U	QU
List utility generally	QU	U	U	U	VU	VU

Table 7.2.1

The annotation of Story 1: Professional discourse

Authoring time: 04.10.02 (changed)
Authoring place: Britain
Author: Christine (changed), Nurse Practitioner, Discussion group member

Attribute	Value	Participant Attribute Ratings					
		4	**5**	**12**	**13**	**17**	**20**
Main point	**Technology is not a panacea.**	d		d	d		
	The patients will check themselves their health with the help of technology.		e				
	The advent of the personless consulting room.					e	
	Problem solving best done by looking at what you want to do.						e
Other point	**Automated consultation – fantasy.**		n	d		d	n
	Observation and interpretation is a skill.	n	n			d	n
	Technology is not a panacea.						n
	Patients would have to use cards.			d			
Feature	**smart card**		e	n	e	e	d
	machine interface	n	e				d
	advice				e		d
	medication				e		
	[fantasy]		e		e		
	[farce]					e	
	[satire]		e			e	
	[irony]					e	d
	body parts						
	[complex plot]	n					
	[symbolism]		e				
	[hyperbole]				e		
	[comedy]					e	
	security			n			

	privacy			n			
	medical advice			n			
	diagnosis assistance			n			
Protagonist	**[Nurse Practitioner]**			**e**	**e**	**e**	**e**
	[Nurse]	n					
	[Computer Operator]		e				
	[Health Visitor]				e		
	[General Practitioner (GP)]				e		
Antagonist	**Software developers**				**n**	**e**	
	[Specialist Nurse]		n				
	[Fund Manager]						d
	Traditional ways of nursing	n					
	Hospital Manager			n			
	Primary Care Trust Management						d
Other character	**Patient**	**n**	**n**	**e**	**e**		**n**
	NHS			e			
Narrator	**Nurse Practitioner**	**n**		**n**	**e**		**n**
	[Intrusive]		**n**	**n**			
	[First-person]			n	e		n
	[Omniscient]					e	
	[Unreliable]						n
Audience	**GP discussion group**	**n**		**e**	**n**		
	[Health Visitors]	n	d		n		
	[Computer Operators]		d			e	
	[General Practitioners (GPs)]				n	e	
	[Nurses]				n	e	
	[Fund Managers]					e	n
	[School Nurses]		d				
	[Specialist Nurses]					e	
	[Continence Nurses]				n		
	[Nurse Consultants]				n		
	[Nurse Practitioners]						n
	NHS			e			
	Hospital Manager			e			

Table 7.2.2

The annotation of Story 5: Professional discourse

Authoring time: 24.05.03 (changed)
Authoring place: London W6
Author: Lesley (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		4	5	12	13	17	20
Main point	**The worry is that the classification label may last for all time.**		e				
	The concern is that patient information may be used in circumstances other than in medical treatment.				d		
	Understanding Human psycho problems are not easy to interpret in computer technology.	d					
	Classifying is difficult (impossible) because it depends on the people actually doing it.			d			
	The need to 'shoehorn complex cases into inflexible categories' which are then set in stone.					e	
	Classification of mental illness has many dangers.						e
Other point	**How does one go about classifying 'neurotic' conditions that we all have from time to time.**	n	n			d	n
	Read codes are a shambolic, ad hoc collection of indefinable conditions.		n			d	
	The concern is that patient information may be used in circumstances other than in medical treatment.						n
	The worry is that the classification label may last for all time.			d			
	It's even harder to classify a neurotic condition when you are likely to suffer from one at a time of your life.			d			
	The author feels lack of control.					d	
Feature	**ethical dilemma**	n		n		e	d
	confidentiality		e		e	e	d
	mental health is a bitch		e	n			d
	obfuscation		e		e		
	trust				e		d
	being let down – badly					e	
	courage						
	blunderbuss						
	[fantasy]	n					

	[complex plot]		e				
	[fact]					e	
	[autobiographical]					e	
	[biographical]						d
	[disclosure]						d
	[tragedy]						d
	subtle and varying degrees of depression			n			
	guidelines can (should) help but they might not always be relevant			n			
	classifying is a personal process			n			
Protagonist	**[General Practitioner (GP)]**	n		e	e	e	e
	[Public Health Nurse]		e				
	[Clinical Psychologist]				e		
	[Psychiatric Nurse (CPN)]					e	
	Patient		e				
Antagonist	**Government**		n	n	n	e	d
	Read code system	n				e	d
	Mental health						
	[Computer Operator]	n					
	[Receptionist]						d
	[Practice Manager]						d
	[Drugs Liaison]						d
	[Fund Manager]						d
Other character	**Patients**	n		e	e	e	
	[General Practitioner (GP)]		n				
	[Community (District) Nurse]						n
	[Psychiatric Nurse (CPN)]						n
	[Principal GP]						n
Narrator	**[General Practitioner (GP)]**	n	n	n	e	e	n
	[First-person]			n	e	e	n
	[Omniscient]				e		
	[Intrusive]			n			
	[Unreliable]			n			
Audience	**GP discussion group**	n		e	n		n
	[Clinical Psychologists]	n			n	e	n
	[General Practitioners (GPs)]	n			n	e	n
	[Psychiatric Nurses (CPNs)]					e	n
	[Principal GPs]						n
	[Receptionists]						n
	[Practice Managers]						n
	[Counsellors]						n
	people		d				
	Government			e			

Table 7.2.3

The annotation of Story 9: Professional discourse

Authoring time: 22.05.03 (changed)
Authoring place: Stony Stratford
Author: John (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		4	5	12	13	17	20
Main point	**All the news is about dissatisfaction but not all of us are dissatisfied.**	d	e	d			
	The situation is not as worse as it is said, but could be worse if things won't change, or bad decisions made.				d		
	That general practice, in the main, is still a worthwhile career choice.					e	
	To be a GP is a good life but is in jeopardy due to a recruitment crisis.						e
Other point	**It may be unusual but I basically like my job and like my patients.**	n	n	d	n	d	n
	Some of us came into general practice to see a couple of generations grow and have families of their own.		n		n	d	n
	Surveys do not represent every aspect of a story.			d			
	Accentuate positive aspects and worry less about what cannot be changed.					d	
Feature	**enjoying the enjoyable**		e	n	e	e	d
	challenge		e		e	e	
	working part time in 2 jobs	n	e			e	
	our middle of the road patch				e	e	d
	pay is not unreasonable			n		e	d
	lucky			n	e		
	coping with the rest	n				e	
	[autobiographical]		e			e	d
	[disclosure]	n				e	
	[fact]					e	d
	benefiting the country						
	benefiting general practice						
	[symbolism]	n					
	[hyperbole]	n					
	[tragedy]						d
	[legend]						d
	Mass resignation			n			
	GPs and their feelings			n			

	Feeling of sadness or disgust in the profession			n			
	doing the job I've always wanted to do			n			
	getting acquainted with your patients			n			
	surveys			n			
Protagonist	**[General Practitioner (GP)]**	n	e	e	e	e	e
	[Principal GP]					e	
	[Locum GP]					e	
Antagonist	**Recruitment situation**	n			n	e	d
	Bad contract		n		n		d
	Mass resignation				n		
	[Fund Manager]					e	d
	[Practice Manager]					e	
	PCT Managers						d
	Feeling of sadness or disgust in the profession				n		
Other character	**Silent majority**	n	n		e		n
	[GP Registrar]	n					
	Patient				e		
	lay audience					e	
Narrator	**General Practitioner (GP)**	n	n	n	e		n
	[First-person]				e	e	n
	[Intrusive]	n		n			
	[Omniscient]				e		
	[unreliable]						n
Audience	**GP discussion group**	n	d	e	n	e	n
	[Practice Managers]				n		n
	[Principal GPs]					e	n
	[Locum GPs]					e	n
	[General Practitioners (GPs)]					e	n
	[GP Registrars]					e	
	[Fund Managers]					e	
	Students					e	

Table 7.3

The annotation of Set b (stories from professional and social discourse)

	Participant Task Ratings					
Participant	7	9	11	14	18	24
Indexing: Ease & difficulty	VE	E	E	QE	QD	E
Restriction felt generally	VU	QU	U	U	QU	U
List utility generally	QU	U	U	QU	U	U

Table 7.3.1

The annotation of Story 2: Professional discourse

Authoring time: 18.10.02 (changed)
Authoring place: Scotland
Author: Richard (changed), Locum GP, Discussion group member

Attribute	Value	Participant Attribute Ratings					
		7	**9**	**11**	**14**	**18**	**24**
Main point	**A full emergency kit is essential up here.**		e			e	e
	I AM the ambulance service as well as the GP.	e					
	Problems of a Highland GP.			n			
	Emergency work in remote areas makes unique demands on emergency kit.				n		
Other point	**Being first on the scene I must be well equipped.**	e	n		e	n	n
	I use the emergency kit on average once a week.	e			e	n	
	I AM the ambulance service as well as the GP.		n		e	n	
	It's never a dull moment for the rural locum.	e			e		n
	A full emergency kit is essential up here.	e			e		
	This is a very stressful job with a great deal of associated responsibility.	e					
	Much of the problem is transport.			n			
	Emergency work in remote areas has its own unique range of issues.				e		
	There is a problem of skill retention with the Highland ambulances.				e		
	Should be having A&E training before taking up a job in rural remote areas.						n
Feature	**air ambulance**	d	e	e	d	e	n
	helicopters	d	e	e		e	n
	999	d		e	d	e	n
	road traffic accidents	d	e		d	e	n
	land ambulance	d	e			e	n
	pick-up trucks	d		e			n
	90 mile an hour winds			e		e	n
	asthmatics		e			e	n
	mobile	d			d		
	heroism		e		d		
	winding single-track roads	d					n
	hangings			e			n
	ruptured ectopic pregnancies					e	n

	children						e	n
	babies						e	n
	ejections		e					
	[simple plot]			e				
	[disclosure]			e				
	[autobiographical]			e				
	[tragedy]					d		
	Practice area in excess of 750 square miles	d						
	pragmatic solutions			e				
	hectic					d		
Protagonist	**[Locum GP]**	e	e			e	d	n
	Highland GP			n				
Antagonist	**Wild nature**						d	e
	An isolated rural community	e						
	Difficult terrain			d				
	Tragic events					n		
	Poor medical facilities in remote areas							e
Other character	**Victims**	e	n	d		n	n	n
	Air ambulance personnel	e						
	Casualties			d				
	Patients			d				
	Nature					n		
	Medical equipment					n		
Narrator	**Locum GP**	e	n			e	e	d
	[First-person]	e	n			e	e	
	Highland GP			n				
	[Omniscient]						e	
Audience	**GP discussion group**		n			n	n	n
	[General Practitioners (GPs)]			n				
	[Specialist Nurses]						n	
	[Community (District) Nurses]						n	
	[Community (District) Midwives]						n	
	[Fund Managers]						n	
	Prospective doctors interested in working in rural communities	d						
	people in general			n				
	Emergency personnel					n		
	PCT							n
	Health authorities							n

Table 7.3.2

The annotation of Story 6: Social discourse

Authoring time: 11.05.03 (changed)
Authoring place: Aldershot
Author: Karen (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		7	9	11	14	18	24
Main point	**In retrospect, the diagnosis was there for all to see.**		e			e	e
	Lesson to be learned: don't put hamsters (or other animals that chew bars) in non-galvanised zinc cages.	e					
	How our love of a hamster still killed her.			n			
	My hamster died of zinc poisoning but there was nothing we could do to save her.				n		
Other point	**A lesson for vets: be thorough in your history taking.**	e	n	n	e	n	n
	Symptoms of zinc poisoning are hair loss, weight loss, skin problems, loss of balance etc.	e	n	n	e	n	n
	In retrospect, the diagnosis was there for all to see.	e		n	e		
	Try to read up for yourself and don't simply leave all the diagnosis for the vet (because the vet does not have full information, that you have, at their disposal).	e					
	The death was caused partly by our own enthusiasm.				e		
	Cinnamon was the first of many hamster pets.				e		
Feature	**non-galvanised zinc mesh**	d	e	e	d	e	n
	fond memory	d		e	d	e	n
	exciting new cage	d	e		d		n
	poverty	d		e		e	n
	passion			e	d		n
	chewing on the bars	d					n
	[tragedy]			e	d		
	[irony]			e	d		
	[parable]			e			
	[autobiographical]			e			
	[disclosure]			e			
	playful						
	cruel yet kind						
	expense of keeping a pet	d					

	regular visits to the vet	d					
	helplessness				d		
	love for animals						n
Protagonist	**Cinnamon**	e	e		e	d	n
Antagonist	**Vet**	e	d			d	
	Poor students	e					e
	Poisonous cage				n		
	Zinc						e
Other character	hamster		n				
	Vet				n		n
	Poor students				n		
Narrator	**Hamster owner**	e	n	n	e	e	d
	[Omniscient]				e	e	
	[First-person]			n			
Audience	**GP discussion group**		n		n	n	
	Vets	d		n			
	Potential pet owners	d					
	people at large			n			
	Poor pet owners			n			
	Pet owners				n		
	[General Practitioners (GPs)]					n	
	[Public Health Nurses]					n	
	children						n

Table 7.3.3

The annotation of Story 10: Professional discourse

Authoring time: 12.05.03 (changed)
Authoring place: Kent
Author: Matthew (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		7	9	11	14	18	24
Main point	**Everyone felt better that we had played safe, though on this occasion it wasn't Meningitis.**		e			e	
	I would like to do my on-call from home, with sensible filtering so that I'm called only when my opinion is really needed.	e					
	I saw the child within 10 minutes of the initial call.						e
	GPs should do their own emergency cover.			n			
	Though it is necessary to remain on-call, most illnesses can be treated before consulting the GP.				n		
Other point	**I would like to do my on-call from home with sensible filtering so that I'm called only when my opinion is really needed.**		n	n	e	n	
	I saw the child within 10 minutes of the initial call.	e	n		e		
	Everyone felt better that we had played safe, though on this occasion it wasn't Meningitis.	e		n	e		n
	Triage by nurses can save valuable GP time.				e	n	
	GPs know the family and can play safe, emergency services see patients as individuals.			n			
	There can be as much as a 14 hour in A&E.				e		
	Should not use nurses to triage as far as children are concerned.						n
	If known [history of] exposure to meningitis, patient should be seen immediately.						n
Feature	**risk**		e	e	d	e	n
	triage nurses	d	e		d	e	
	experience		e	e	d	e	
	severe frontal headache	d	e		d		n
	unvaccinated	d		e		e	n
	short history	d		e			n
	vomiting	d	e				n
	birthday party	d			d		n
	common sense		e		d		n
	two confirmed cases	d				e	n

	2 other children asleep upstairs						
	[simple plot]		e				
	[parable]		e				
	[autobiographical]		e				
	[fact]				d		
	14 hour wait in A&E	d					
Protagonist	**[General Practitioner (GP)]**	e	e		e	d	n
	10 year old child	e				d	n
Antagonist	**14 hour wait in A& E**	e				d	e
	Uncertainty	e				d	
	[Nurse]		d				
	Unnecessary call-outs				n		
Other character	**Younger siblings**	e	n			n	n
	2 other confirmed cases	e					
	Nurses				n		
	10 year old child				n		
	parent					n	
Narrator	**General Practitioner (GP)**	e	n	n	e	e	d
	[First-person]	e	n	n	e	e	
Audience	**GP discussion group**		n	n	n		n
	[Fund Managers]	d					
	[Pharmacists]	d					
	[Public Health Nurses]	d					
	[Community (District) Nurses]	d					
	[General Practitioners (GPs)]	d					
	[School Nurses]					n	
	[Senior Nurse Practitioners]					n	
	[Nurse Consultants]					n	
	[Nurses]					n	
	parents in general	d					
	Parents			n			
	Health Service Managers			n			
	Nursing staff				n		
	People responsible for funding of NHS						n

Table 7.4

The annotation of Set c (stories from professional discourse)

	Participant Task Ratings					
Participant	2	6	15	16	21	22
Indexing: Ease & difficulty	QE	QD	QE	QD	QE	E
Restriction felt generally	U	U	U	QU	QR	QU
List utility generally	VU	U	QU	QU	QU	VU

Table 7.4.1

The annotation of Story 3: Professional discourse

Authoring time: 09.10.02 (changed)
Authoring place: West London
Author: Neil (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		2	6	15	16	21	22
Main point	**Bulk prescription wastes money.**			e			e
	Bulk prescription requires storage.		e				
	Bulk prescription doesn't fit patient's circumstances.	e					
	Because the hospital system doesn't care, my efforts are for nothing.				d		
	The main problem here is the total inflexiblity of the system.					d	
Other point	**Because the hospital system doesn't care, my efforts are for nothing.**	n	n	e		e	
	Bulk prescription requires storage.	n		e	n	e	n
	Bulk prescription is irrational.			e	n	e	
	Bulk prescription wastes money.	n	n		n	e	
	Hospital system makes prescribers unaware of costs.	n					
	Collaboration between pharm and hosp.				n		
	Whose responsibility would that be in a public sector hosp??				n		
	Use of smaller dose units would facilitate increase or reduction of dose.					e	
	There has been no allowance for changes in dosage need due to improvement or deterioration of patient response to therapy.					e	
	Rigidity of the system doesn't allow for any flexibility or compromise.						n

Feature	**waste**	n	d	n	e	e	e
	bonkers	n	d	n	e		
	eprex storage		d	n	e	e	e
	anger		d	n	e	e	e
	script		d	n			
	time			n	e		e
	boxes			n			
	[farce]	n	d				
	[complex plot]		d				
	[biographical]		d				
	[irony]				e		
	'his' problem				e		
	'sod it…'				e		
	frustration				e		
	scam				e		
	rigidity of thinking					e	
	disappointment						e
Protagonist	**[Community Pharmacist]**	e	d	n	e	e	d
	Patient		d				
Antagonist	**Hospital**		d	n	e	d	d
	System		d	n	e	d	d
	Hospital prescribers	n					
	Financial responsible purchaser					d	
Other character	**Patient**	n	n	n	n	e	d
	[Pharmacist]		n				
Narrator	**[Omniscient]**	n	n		n		
	Community Pharmacist			n	n		n
	[Unintrusive]	n	n				
	[First-person]			n			
	[Unreliable]					n	
Audience	**GP discussion group**	d	e	d		e	e
	[General Practitioners (GPs)]		e		n		
	[Pharmacists]	d				e	
	[Practice Managers]				n	e	
	[Community Pharmacists]					e	e
	[Health Visitors]		e				
	[Nurse Practitioners]					e	
	[Nurse Consultants]					e	
	[Community (District) Nurses]					e	
	[Principal GPs]					e	
	[Fund Managers]					e	
	Newspaper readers		e				
	funding agency (Govmnt?)				n		
	health trust admins				n		
	patient support organisations					e	

						e	
	Patients					e	
	Practice Pharmacists					e	
	hospital pharmacy						e

Table 7.4.2

The annotation of Story 7: Professional discourse

Authoring time: 05.05.03 (changed)
Authoring place: Bexley
Author: Maurice (changed), Senior Medical Advisor, Discussion group member

Attribute	Value	Participant Attribute Ratings					
		2	6	15	16	**21**	**22**
Main point	**Triage has no real function beyond allowing A&E to make performance claims.**		e	e	d		
	There are ways of bypassing the referral system – if you are prepared to go to such lengths.	e					
	Poor understanding of purpose of triage.					d	
	Triage has a place in prioritising.						e
Other point	**There are ways of bypassing the referral system – if you are prepared to go to such lengths.**		n	e	n		n
	Triage has no real function beyond allowing A&E to make performance claims.	n					n
	Superficial diagnostic approach in A&E.				n		
	Not only bypassing but clearly ways to abuse the system.				n		
	Is it necessary to have someone diagnosing 'obvious things'?				n		
	This gives illustration of how misuse is made of triage.					e	
	This is a mischievous presentation of triage.					e	
Feature	**cunning**	n		n	e	e	e
	internal referral	n	d	n			e
	STD department	n		n	e		e
	scam of the century		d	n	e		
	first 24 hours		d	n	e		
	perversity	n			e	e	
	referral letter	n			e		
	2 year wait for a tonsillectomy		d		e		
	[comedy]	n	d	n			
	[farce]		d	n	e		
	ouch!				e		

	[irony]		d				
	[fact]		d				
	[complex plot]		d				
	[satire]				e		
	workload balance across NHS				e		
	ambiguity				e		
	scamming the scammers	n					
	perceptions of priority					e	
	Frustrations					e	
	amazement at peoples gall						e
Protagonist	**Wily patient**	e	d		e	e	d
	Doctor			n			
	Desperate patient				e		
	Accompanying relative					e	
	Recalcitrant A+E person					e	
Antagonist	**Triage nurses**	n	d	n	e	d	
	Hospital process					d	
Other character	**none**			n			
	[General Practitioner (GP)]		n		n		
	legendary friend	n					
	hosp. specialists (e.g. STD)				n		
	Regional Area Director					e	
	Minister of Health					e	
	STD dept						d
Narrator	**[Unreliable]**	n	n		n		n
	Interested observer		n		n	n	
	[Intrusive]			n	n		
	[First-person]		n				
	Disgruntled doctor			n			
	Mischievous campaigner					n	
Audience	**GP discussion group**		e	d	n	e	e
	Patients	d	e				
	[Health Visitors]		e			e	
	[Receptionists]				n		
	[Nurses]				n		
	[Practice Managers]					e	
	[Community (District) Nurses]					e	
	[Principal GPs]					e	
	[Locum GPs]					e	
	[General Practitioners (GPs)]					e	
	Triage nurses	d					
	Practice Nurses					e	
	Special illness organisations					e	
	Self help organisations					e	
	NHS Direct staff						e

Table 7.4.3

The annotation of Story 11: Professional discourse

Authoring time: 06.05.03 (changed)
Authoring place: Leiston
Author: Donald (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		2	6	15	16	21	22
Main point	**PMs don't record the principle cause of death.**			e	d	d	
	PMs record the immediate cause of death, rather than the reason for the death.	e					e
	PMs don't always hint the main point.		e				
Other point	**none**			e			
	Patients with dementia are at risk and often need more care than they get.	n					
	There's no adequate way to go back to PM results after they've been stated.		n				
	Reliability (usefulness?) of PM				n		
	Can PM practitioner link various potentially contributing mental factors judging from the 'physical' evidence?				n		
	Direct vs. indirect causes of death.				n		
	PMs are not holistic in concept.					e	
	It may have been a non accidental injury or abuse.						n
Feature	**dementia**	n	d	n	e	e	e
	bronchopneumonia	n	d	n	e		e
	EMI	n	d			e	
	big black eye				e	e	e
	?fall				e		e
	?fit				e		e
	?stroke						e
	[disclosure]		d	n			
	[tragedy]		d	n			
	[meiosis]	n					
	[fact]	n					
	[biographical]	n					
	[irony]			n			
	injury vs. killed him				e		
	as expected				e		
	light-hearted writing about a serious topic				e		
	Exposure					e	

	Died alone					e	
	Died 4 days after discovery					e	
	Facial injuries					e	
	unwitnessed injury						e
Protagonist	**[General Practitioner (GP)]**	e		n	e	e	
	Old man		d				*d*
	Relative/Friend					e	
Antagonist	**Coroner**			n	e	d	
	[General Practitioner (GP)]						d
	System	n					
	PM procedure/reliability		d				
	Registry of Births, Deaths etc					d	
	Medical conventions					d	
Other character	**Old boy**	n		n	n	e	
	Coroner		n				*d*
	[General Practitioner (GP)]		n				
	[Psychiatric Nurse (CPN)]					e	
	hospital (no need for referring to it?)				n		
	witness (or their absence)				n		
	Church					e	
	Neighbours					e	
Narrator	**[General Practitioner (GP)]**	n	n	n	n	n	n
	[First-person]	n	n	n	n		
	[Unreliable]		n				
	[Unintrusive]		n				
	Benevolent campaigner					n	
Audience	**GP discussion group**	d	e	d	n	e	e
	Coroners		e		n		
	trainee coroners						e
	[Health Visitors]	d					
	[Psychiatric Nurses (CPNs)]					e	
	[Community (District) Nurses]					e	
	nurses continuing education - non accidental injury NAI						e
	Medical students				n		
	Patients		e				
	Carers of people with dementia					e	
	Alzheimers Society					e	

Table 7.5

The annotation of Set d (stories from social, professional and technological discourse)

	Participant Task Ratings					
Participant	1	3	8	10	19	23
Indexing: Ease & difficulty	E	E	QE	E	D	QE
Restriction felt generally	U	U	QU	U	U	U
List utility generally	U	VU	U	VU	U	QU

Table 7.5.1

The annotation of Story 4: Social discourse

Authoring time: 29.10.02 (changed)
Authoring place: Epping Forest
Author: Yasmin (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		1	**3**	**8**	**10**	**19**	**23**
Main point	**I try to use my experience to make the best choices I can today.**			e			e
	The author questions whether we actually make choices or whether they are to a certain extent decided for us.	e					
	Often our choices are conditioned by the circumstances, but what counts is to make the best choices in the space we have.		d				
	That even when you have choices, sometimes neither choice is desirable.				e		
	Experiences in life are not always left to choice.					n	
Other point	**What does 'choosing' mean; does one ever really choose?**	e		e	d	e	
	I try to use my experience to make the best choices I can today.	e					
	Also, that the author tries not to worry about past choices.	e					
	Some people are privileged as they have more choice than others.		e				
	…go forward by not worrying about the choices I have made…			e			
	We do not have much "choice" when we are children.						n
Feature	**convent school**	d	n	n	n		n
	[autobiographical]	d	n	n		n	n

	jungle	d	n		n		n
	having one's cake and eating it	d	n			n	n
	fat donations	d	n			n	n
	privilege		n	n			n
	pagan name	d	n				
	confirmation name		n				
	[allegory]		n				n
	[irony]			n			n
	[complex plot]			n			n
	[fact]					n	n
	[tragedy]			n			
	[disclosure]				n		
	[comedy]					n	
	[symbolism]						n
	[hyperbole]						n
	religion		n				
	money		n				
	social justice		n				
	social expectations		n				
	social roles		n				
	choose and option			n			
	Moslem				n		
Protagonist	**Pupil**	e	d	e		e	
	[General Practitioner (GP)]				e		e
	[Counsellor]					e	
	[Psychiatric Nurse (CPN)]					e	
	Practitioner		d				
Antagonist	**Nuns**	e	d	n	e	e	
	Medical System		d				
	Father						e
Other character	**Daughters**		e	n	n		e
	Prominent Moslem dads		e		n	n	e
	Mother		e				e
	Mothers				n		
	Parents			n			
Narrator	**[First-person]**	e	e	n	n	n	n
	General Practitioner (GP)	e			n		n
	[Unreliable]					n	
	Practitioner		e				
Audience	**GP discussion group**	e			d		
	[Psychiatric Nurses (CPNs)]					n	d
	[Counsellors]					n	d
	[Clinical Psychologists]					n	d
	[Drugs Liaison]					n	
	The author (individual as well as the rest of the	e					

	group) of the message that this is in response to						
	Friend		d				
	Colleague		d				
	Anyone			d			

Table 7.5.2

The annotation of Story 8: Professional discourse

Authoring time: 03.05.03 (changed)
Authoring place: Haxby
Author: Andrew (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings						
		1	**3**	**8**	**10**	**a12**	**19**	**23**
Main point	**The Italian way of treating fractures is to overtreat – massively.**		d	e	e		n	e
	Medical practice varies – not standardised.	e						
	There are different approaches to treating fractures.					d		
Other point	**The fracture was reduced without any anaesthetic.**	e		e		d	e	n
	The Italian way of treating fractures is to overtreat – massively.	e				d		
	Variability of medical proceedings.			e				n
	Medical practice varies – not standardised.							n
	If they overtreat fractures, on the other hand, they undertreat the patient's pain.		e					
	This wasn't the first time this happened to them.				d			
	There is unnecessary immobilisation.						e	
Feature	**pain**	d	n	n	n		n	n
	the Italians like their stucco	d	n	n	n			n
	grim	d	n	n				n
	mummy cast behind the door	d	n				n	n
	screams		n	n			n	n
	prisoner		n	n				
	noisy	d	n					
	collar and cuff	d	n					
	Colles		n					n
	crossing the language barrier		n				n	
	[autobiographical]	d	n					n
	[satire]			n				n
	[irony]			n				n

	[comedy]				n			n
	[fact]				n			n
	[fantasy]							n
	[farce]							n
	[symbolism]							n
	[biographical]						n	
	cleaners		n					
	nursing		n					
	elderly		n					
	nocturne moaning		n					
	grim ward				n			
	Elements of corroboration					n		
	High variability in the practices					n		
	A similar previous experience					n		
Protagonist	**Old lady**	e		e				e
	German orthopaedic surgeon				e		e	
	Daughter	e	d					
	Richard		d					e
	[General Practitioner (GP)]							e
	narrator	e						
	Son	e						
	Father					e		
Antagonist	**Italian plasterers**	e	d	n	e		e	e
	Italian medical professionals	e						
	The Sicilian hospital					n		
	Italian Health System					n		
Other character	**Emergency doctor**		e	n	n	e	n	e
	Cleaning ladies	n	e	n	n	e		
	Daughter			n	n		n	e
	Son			n	n	e		
	Old lady		e		n	e		
	German orthopaedic surgeon		e					e
	Father		e					
Narrator	**Father**	e	e	n	n	n	n	n
	[First-person]	e	e		n			
	[Intrusive]					n		n
	[Unreliable]					n		
	Third person		e					
Audience	**GP discussion group**	e	d	d	d	e	n	d
	[Nurses]			d				d
	[Practice Managers]			d				
	[General Practitioners (GPs)]							d
	[Physiotherapists]							d
	Acquaintances		d					
	dinner party guests				d			

	Travel Insurance company					e	

Table 7.5.3

The annotation of Story 12: Technological discourse

Authoring time: 13.05.03 (changed)
Authoring place: Cardiff
Author: Daniel (changed), General Practitioner (GP), Discussion group member

Attribute	Value	Participant Attribute Ratings					
		1	3	8	10	19	23
Main point	**Throughout the NHS, IT knowledge is seen as a luxury and an optional extra.**	e		e	e	n	
	No IT training/support for NHS staff.						e
	The NHS makes use of tools without providing its employees with the necessary knowledge.		d				
Other point	**Hospital IT departments are grossly under-resourced.**	e	e	e	d	e	n
	Here in GP Land, in-house IT is anyway non-existent.	e	e	e	d	e	n
	No IT training/support for NHS staff.	e					
	The NHS is less professional even of an entertainment or cultural organisation.		e				
	My wife has trouble receiving documents from her trust.				d		
	The 2 hour course to equip staff with IT skills.					e	
Feature	**no support**	d	n	n	n	n	n
	problem	d	n		n	n	n
	barely coping	d	n			n	
	2 hour course		n			n	n
	long list		n				n
	presumption		n				n
	[fact]				n	n	n
	apology		n				
	bureaucracy			n			n
	under-resourced				n		n
	[simple plot]			n			
	[satire]			n			
	[hyperbole]						n
	[disclosure]						n
	ironic (sic)						n
	work tools			n			
	(IT) knowledge			n			

	bad manners		n				
	unprofessionalism		n				
	2004					n	
	time restraints on staff						n
Protagonist	**My wife**	e	d	e		e	e
	[General Practitioner (GP)]				e		
	NHS employees			e			
Antagonist	**Email headers**						
	NHS (i.e. their lack of infrastructure)	e					
	NHS management of the trust		d				
	NHS managers			n			
	management					e	
	people that allocate IT funding				e		
	IT System						e
Other character	**Secretary**	n	e	n			e
	FilmFour management		e				
	FilmFour mailing list people				n		
	FilmFour						e
	Wife				n		
Narrator	**FilmFour subscriber**		e		n	n	
	[Intrusive]			n			n
	[First-person]		e		n		n
	Daniel	e					
	Third-person		e				
	General Practitioner (GP)				n		
Audience	**GP discussion group**	e	d	d	d		d
	[Computer Operators]					n	d
	[Counsellors]			d			
	[General Practitioners (GPs)]						d
	[Fund Managers]						d
	Acquaintance		d				

7.3.2 - Distribution of the modes of suggestion for indexical values
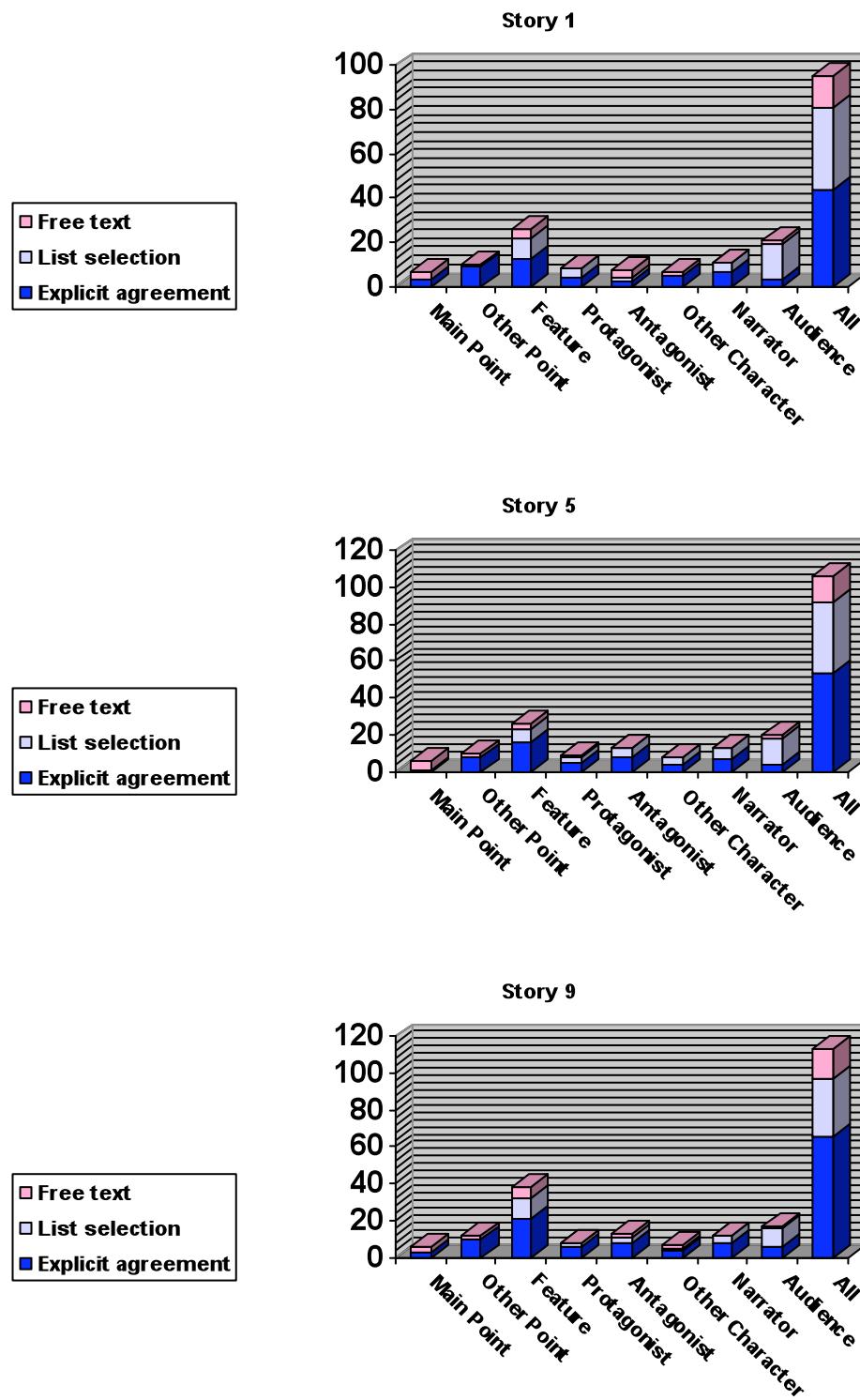
The graphs below in Figures 7.6 to 7.9 shows for each story and for each set, the distribution of the types of suggestion participants finally make. The first type is explicit agreement; this is where the annotator ticks the editor's suggestions and, in the case of participants in the second session, may additionally tick alternative suggestions made by

participants in the first session. The second type is list selection; this is offered on all indexical dimensions except the *Point* dimensions. The third type is where the annotator chooses to enter their own suggestions which differ in some way to any of the suggestions offered. Colours representing the modes of suggestion continue the user interface theme: blue for explicit agreement, mauve for list selection and pink for free text input.

What is striking is that the number of suggestions made for all sets is very similar and almost identical in the case of *set b* and *set c*, these range from 313 in the case of *set a* to 370 in the case of *set d*. Recall from Figure 7.4 above however, that participants assigned to *set a* stand out because their judgements regarding attribute ease and difficulty differ from those made by participants assigned to the other sets. In particular, they tend not to judge 'difficult' those that have selection lists attached but do tend to judge 'difficult' those that do not. Now it can be seen that participants assigned to *set a* make relatively high use of the selection lists whereas participants assigned to *set b* make relatively low use of these and instead tend to agree with previous suggestions. *Sets c* and *d* are remarkably similar in their respective distributions. According to the results, selection lists are least helpful for *Character* suggestion and most helpful for *Feature* and *Audience* suggestion.

Figure 7.6

Set a   Distribution of explicit agreement, list selection and free text suggestions

Story 1

Story 5

Story 9

Stories 1, 5 & 9

Legend:
- Free text
- List selection
- Explicit agreement

X-axis categories: Main Point, Other Point, Feature, Protagonist, Antagonist, Other Character, Narrator, Audience, All

Y-axis: 0, 50, 100, 150, 200, 250, 300, 350
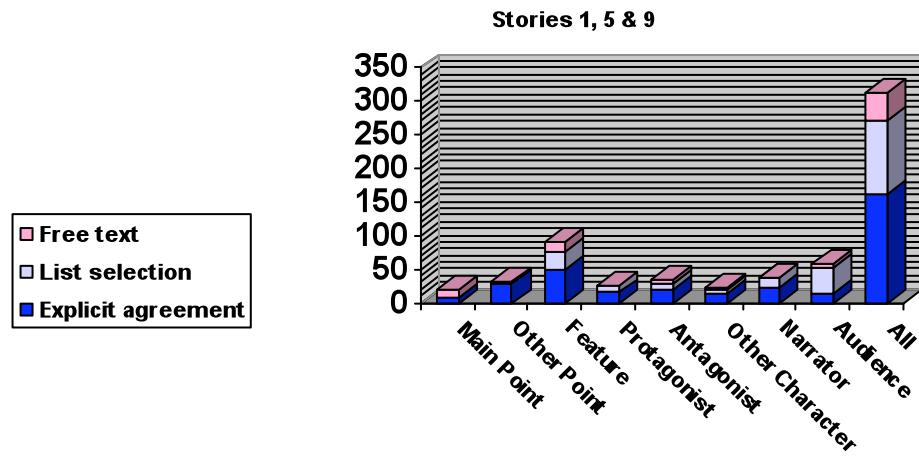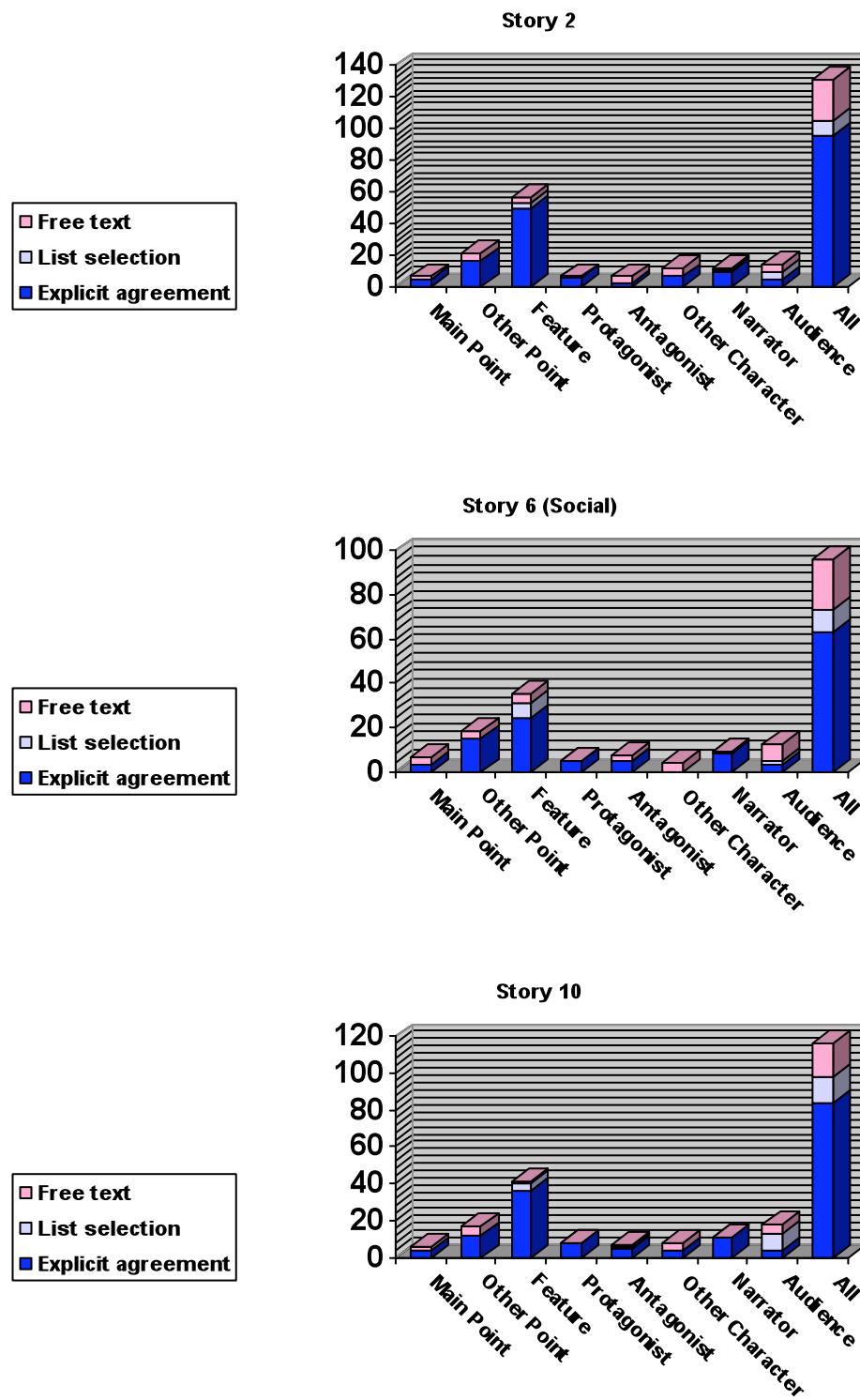
Figure 7.7

Set b   Distribution of explicit agreement, list selection and free text suggestions

Story 2

Story 6 (Social)

Story 10

Stories 2, 6 & 10

Legend:
- Free text
- List selection
- Explicit agreement

Categories: Main Point, Other Point, Feature, Protagonist, Antagonist, Other Character, Narrator, Audience, All
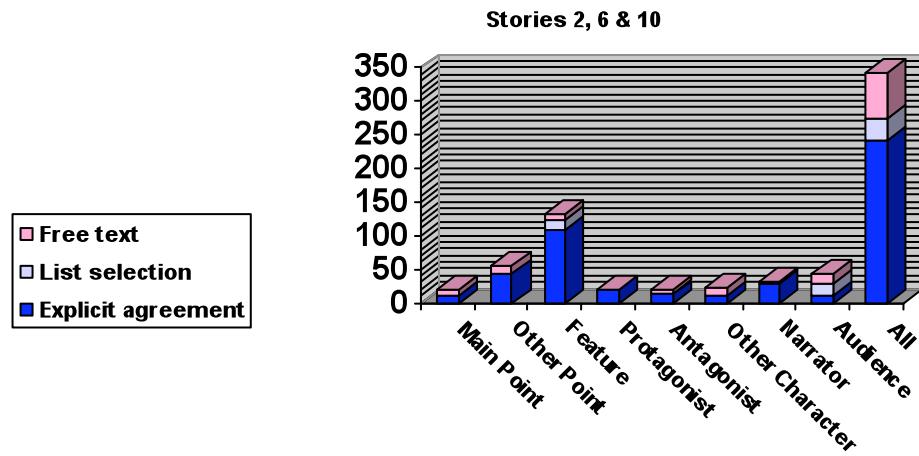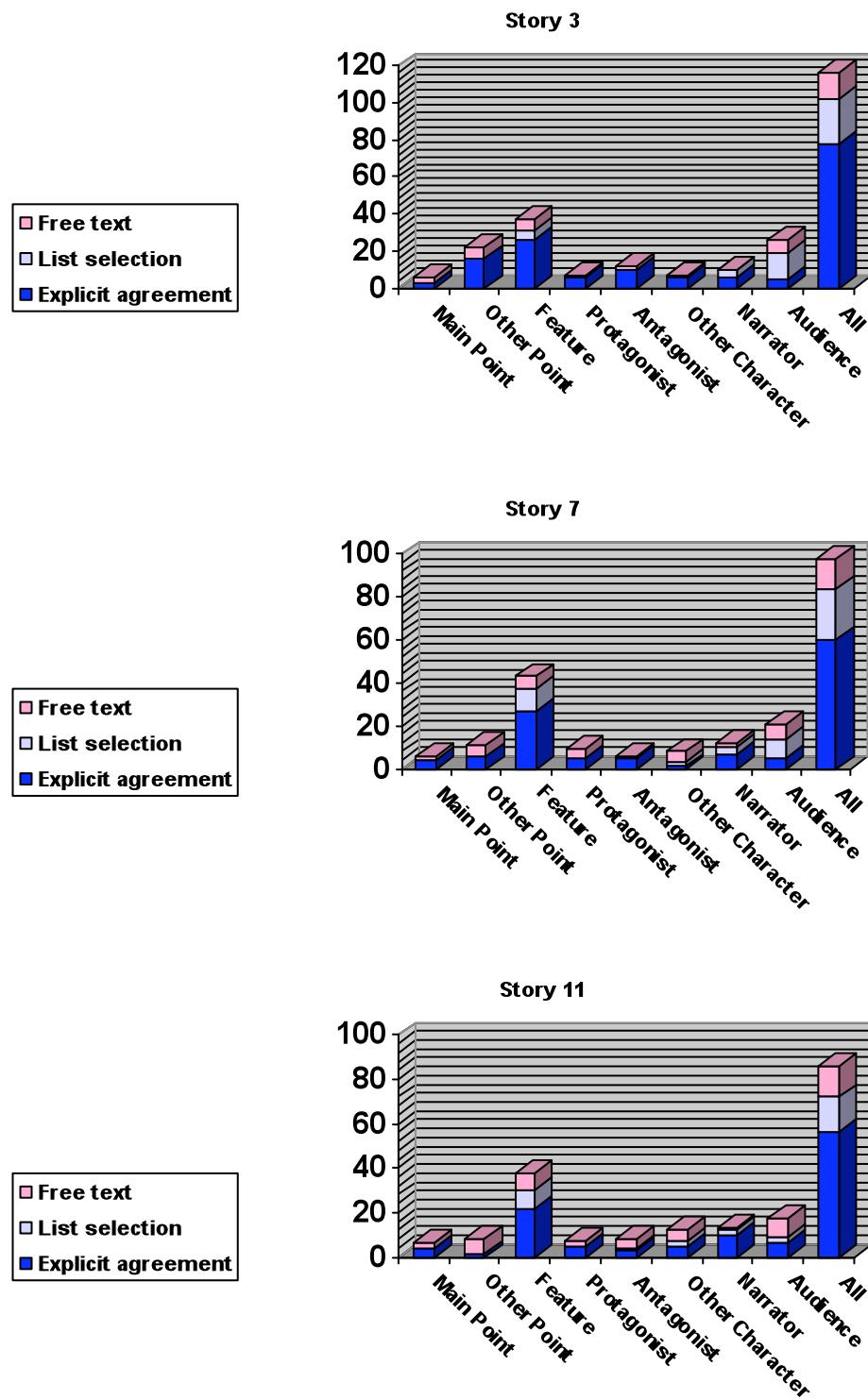
Figure 7.8

Set c   Distribution of explicit agreement, list selection and free text suggestions

Stories 3, 7 & 11

Legend:
- Free text
- List selection
- Explicit agreement

Categories: Main Point, Other Point, Feature, Protagonist, Antagonist, Other Character, Narrator, Audience, All
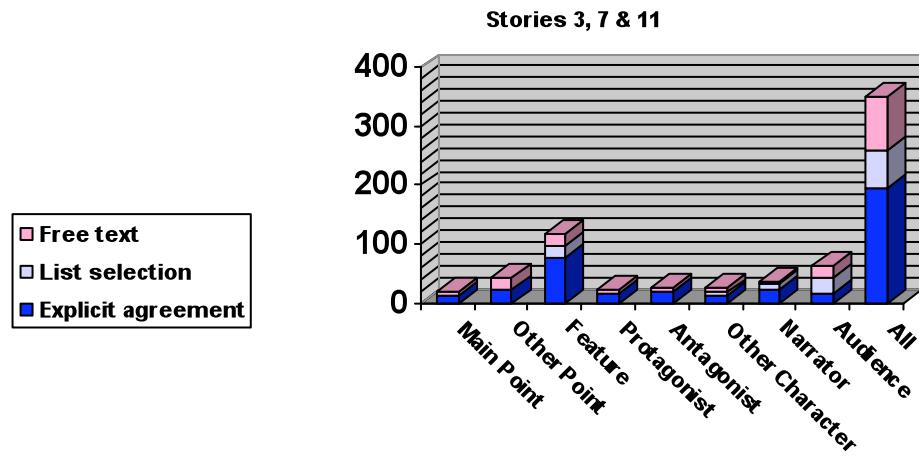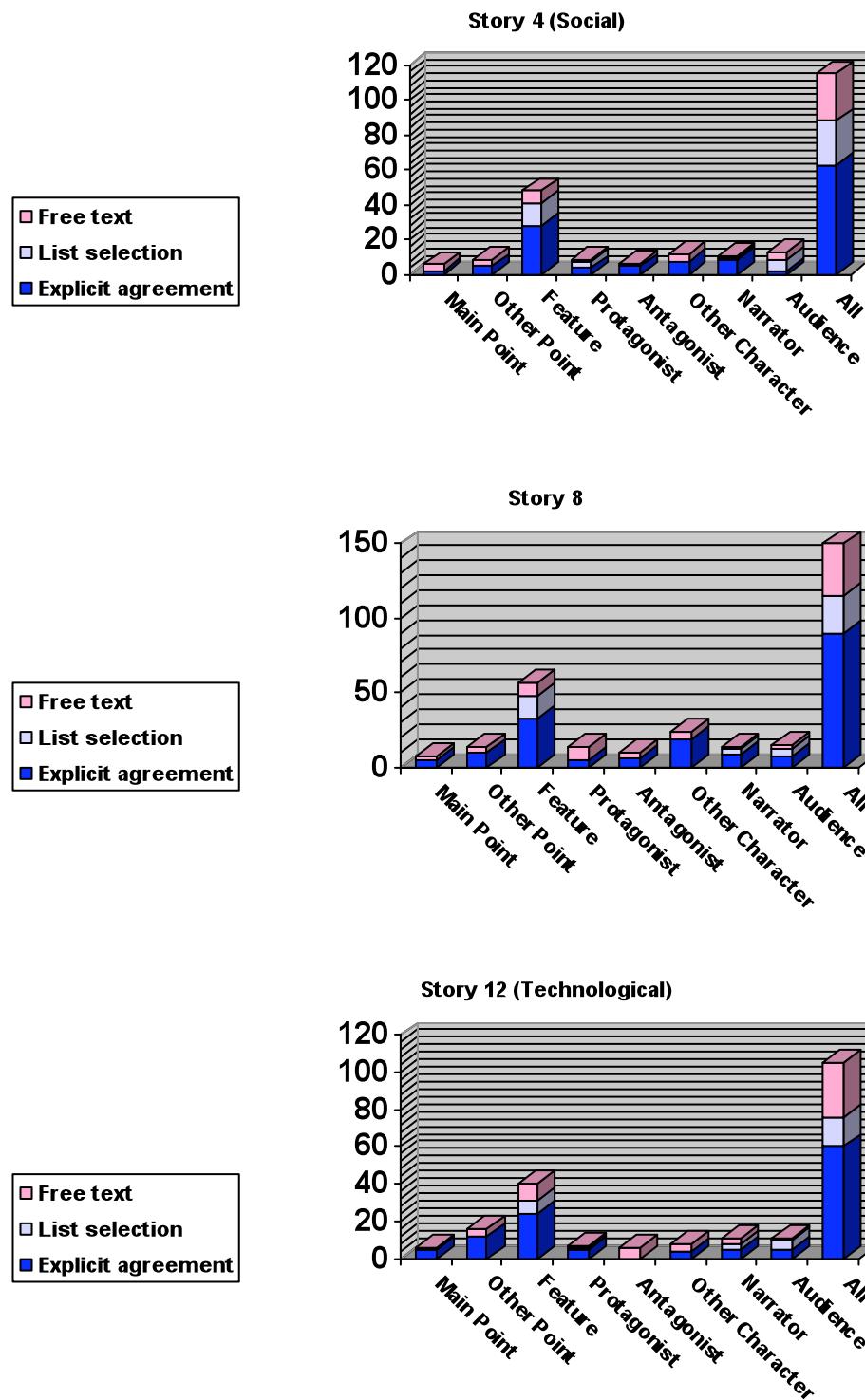
Figure 7.9

Set d   Distribution of explicit agreement, list selection and free text suggestions

Stories 4, 8 & 12
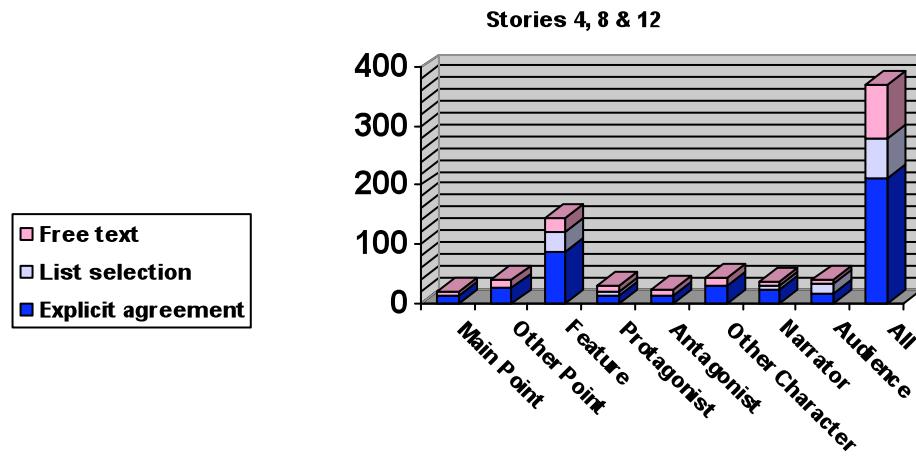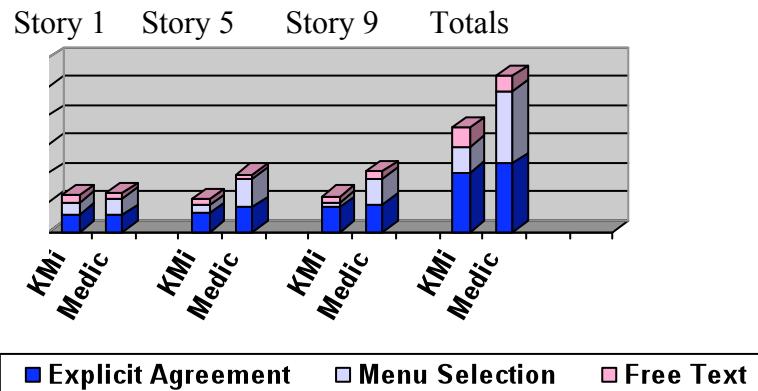
Figure 7.6 to 7.9 above did not look at the two sessions individually so that is what we shall do now. Figure 7.10 below shows the relative frequencies with which annotators from each of the two sessions use each of the three basic annotation methods: explicit agreement, menu selection and free text. It does this for each story and for each set of stories. Frequencies here are relative because there are twice as many Session 1 participants as Session 2 participants. We see that Session 1 participants (KMi) and Session 2 participants (Medic) differ in their chosen annotation methods. Sometimes this difference appears slight and sometimes it is more noticeable.
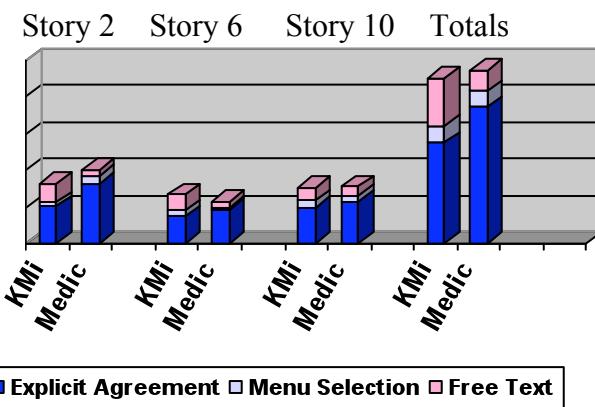
Figure 7.10

View of Session 1 (KMi) and Session 2 (Medic) annotation choices

Set *a*

Set *b*

Set *c*

Figure 7.10 contd.

Set *d*

Story 4   Story 8   Story 12   Totals
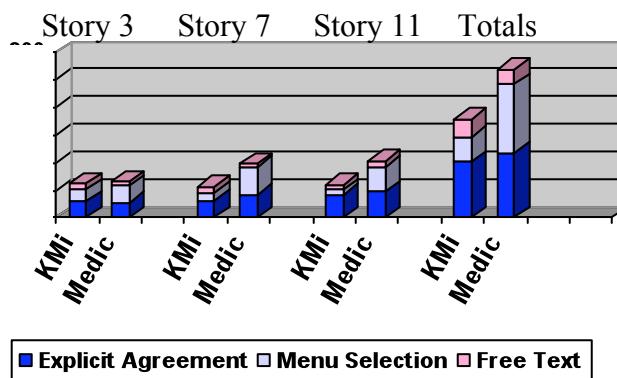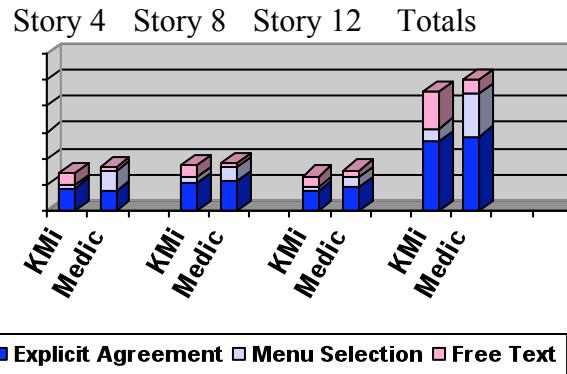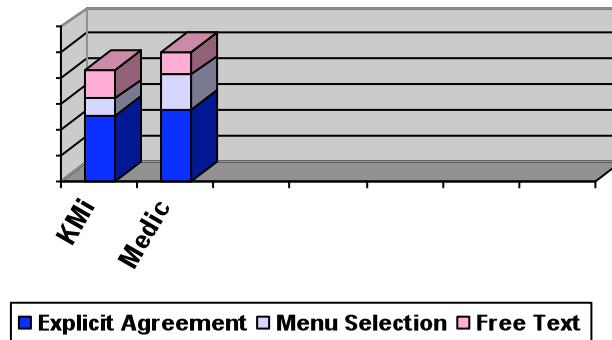
Sessions 1 and 2 totalled

We would like to know whether, for each of the twelve stories, this relative difference in annotation pattern is statistically significant. Our grounded theory approach to the data ought to deter us from making hypotheses; on the other hand, it need not provided those hypotheses are fair. We have one, which is that Session 2 participants' usage patterns of the three annotation methods does not differ significantly from Session 1 participants' usage patterns.

In order to analyse those annotation method usage patterns statistically, we need to take the frequency with which participants use each of them to annotate each of the stories. Because there are twice as many Session 1 participants, we can either halve the frequencies in the case of Session 1 or double the frequencies in the case of Session 2. We choose the latter to avoid fractional frequencies and also to ensure (with one exception) that the size of each category: Explicit Agreement (A), Menu Selection (M) and Free Text Input (F) is always above the recommended minimum (>= 5) for applying Pearson's Chi Square test for goodness of fit.

Our confidence level is 95%. The number of categories (3) minus 1 gives two degrees of freedom and this gives a critical value (α) of 5.99. Table 7.6 provides a summary of the twelve applications of the Chi Square calculation.

Table 7.6

Calculating the Chi Square Statistic

Set	Story	Story Type	Expected frequency (e)			Observed frequency (o)			$\sum(o-e)^2/2$	$\sum(o-e)^2/2 <= \alpha$
			A	M	F	A	M	F		
a	1	Professional	29	22	11	28	30	8	3.76	True
	5	Professional	31	14	11	42	50	6	98.74	False
	9	Professional	42	9	10	48	44	12	137.37	False
b	2	Professional	51	5	25	82	10	8	312.84	False
	6	Social	37	8	22	46	4	8	13.1	False
	10	Professional	49	10	18	58	8	12	4.05	True
c	3	Professional	50	14	18	46	20	22	3.78	True
	7	Professional	44	18	16	26	12	38	39.61	False
	11	Professional	36	12	20	40	8	34	11.57	False
d	4	Social	43	6	24	38	38	8	181.92	False
	8	Professional	54	11	23	58	26	6	33.32	False
	12	Technological	37	7	22	46	18	14	22.39	False

Our hypothesis is 'proved' in only one quarter of cases, and these are all Professional type stories; in three quarters of cases the Chi Square statistic far exceeds the critical value (α) and so we have learned something potentially quite useful, which is that medic participants annotate very differently to KMi participants most of the time, and, in the case of group *d* participants, all of the time.

7.3.3 - Annotation behaviours

Having presented the indexical results data it is possible to draw out some interesting individual and collective annotation behaviours based solely on them. These include:

(1) Story summaries

(2) attribute value transpositions

(3) dimensional switching

(4) personification

(5) objectification

(6) going beyond the domain.

When describing the story annotation model in Chapter 5 it was explained that one function of the Main Point was to provide a title or alternative title for the story. What is most striking about the *Main* and *Other Point* is the quality and care of composition. Every one of them would perform the function of title and alternative title. The subsection 7.3.3.1 discusses the possibility that they could also provide story summaries.

That people would want to promote and/or demote the editor's story points was included as a design feature of the evaluation prototype. It was also predicted that annotators would want to rearrange character roles although this was not facilitated. The subsection 7.3.3.2 shows where these transpositions took place.

Subsections 7.3.3.3 and 7.3.3.4 show other annotation behaviours which suggest among other things where attribute value selection lists can be helpful and where they can be unhelpful. Sometimes an annotator will use the same term but in a different context, for example they might recognise in a character or narrator, a potential audience. The selection list for *Audience* contains only groups but sometimes annotators will suggest individuals; if they do suggest groups, quite frequently they are general interest groups.

Character roles are perhaps the most problematic when considering the utility of selection lists. Once committed to the story as an effective knowledge medium, it has to be properly understood that some of the power of stories owes to their strangeness, and that strangeness must tip over into their annotation, some of which can be seen in the final subsection, 7.3.3.5. If we want the story we must also recognise and even encourage the strangeness of the annotation, and to provide for it.

7.3.3.1 - Story summaries

That the medics in the second session occasionally knowingly agree with the *Points* made by the knowledge media researchers in the first session comes a surprise because

their respective domains of expertise are so different. In the first session, the annotators were not able to see what others had done and apart from agreeing with the editor, they do not tend to unknowing agree with each other. Where participants' *Points* are very similar but just phrased differently, or where their *Points* are so different as to be opposing, their potential for story summarisation is weak; it is strengthened where participants' *Points* highlight different areas of the story.

7.3.3.2 - Transposable attribute value pairs

Transposition of attribute value means different things according to where it occurs. Always an indicator of perspective difference, in the case of *Point* it represents partial agreement with the Editor but for *Character* it represents explicit disagreement.

As previously, the editor's indexing is shown in bold, but here it contributes to the suggestion frequency. Also shown, in italic, is where participants in the second group partially agreed with participants in the first group. In the columns alongside, the position of the bold or italic frequency ($Freq_{Attribute}$) indicates which attribute the editor or previous reader was attending to at the time. Square brackets are again used for selections list terms. In Table 7.7 the stories for which there is no *Point* transposition are 9 and 11.

In the case of Table 7.8 a transposition requires that the values of the respective attributes were supplied by different annotators, for if supplied by the same annotator it suggests that a character role is ambiguous rather than contentious. The values themselves need

not match exactly but must be of the same kind. The most generic suggestion followed by an ellipsis is given. The stories for which there is no *Character* transposition are 9, 2, 3 and 4. Usually, transpositions involve a central character and a peripheral character but occasionally they involve two central characters. The fact that the evaluation prototype did not explicitly design for character transposition but annotators transposed them anyway suggests that had the facility been there, it would have been used. It also provides strong evidence that people will identify with different characters in the story.

Table 7.7

Main and Other Point Transposition

Story	Freq$_{Main}$	Freq$_{Other}$	Value
1	**4**	1	**Technology is not a panacea.**
5	**2**	1	**The worry is that the classification label may last for all time.**
	1	*1*	*The concern is that patient information may be used in circumstances other than in medical treatment.*
2	**4**	2	**A full emergency kit is essential up here.**
	1	**4**	**I AM the ambulance service as well as the GP.**
6 (S)	**4**	3	**In retrospect, the diagnosis was there for all to see.**
10	3	**4**	**Everyone felt better that we had played safe, though on this occasion it wasn't Meningitis.**
	1	**5**	**I would like to do my on-call from home with sensible filtering so that I'm called only when my opinion is really needed.**
	1	**4**	**I saw the child within 10 minutes of the initial call.**
3	3	**4**	**Bulk prescription wastes money.**
	1	**6**	**Bulk prescription requires storage.**
	1	**5**	**Because the hospital system doesn't care, my efforts are for nothing.**
7	**4**	2	**Triage has no real function beyond allowing A&E to make performance claims.**
	1	**5**	**There are ways of bypassing the referral system – if you are prepared to go to such lengths.**
4 (S)	**3**	1	**I try to use my experience to make the best choices I can today.**
8	**6**	2	**The Italian way of treating fractures is to overtreat –**

			massively.
	1	*1*	*Medical practice varies – not standardised.*
12 (T)	*1*	**1**	*No IT training/support for NHS staff.*

Table 7.8

Character Transposition

Story	Freq$_{Protagonist}$	Freq$_{Antagonist}$	Freq$_{Other Character}$	Value
1	**6**	1		**[Nurse…]**
5	1		**5**	**Patient/s**
	6		1	**[General Practitioner (GP)]**
	1		1	**[Psychiatric Nurse (CPN)]**
6 (S)		**4**	2	**Vet**
		3	1	**Poor Students**
10	**4**		1	**10 year old child**
		1	1	[Nurse…]
7	1		3	Doctor...
11	**5**	1	1	**[General Practitioner (GP)]**
	2		**5**	**Old boy…**
		4	2	**Coroner**
8	**4**		3	**Old lady**
	3		2	**German orthopaedic surgeon**
	1		1	Father
	2		**5**	**Daughter**
	3		**4**	**Son…**
12 (T)	**6**		1	**My wife**

7.3.3.3 - Audience triggers

Unlike the transposition tables above, in the following two tables it does not matter whether the respective values were supplied by the same or different annotators. The values if not identical must be of the same kind and the *Audience* values must be of the same level or more generic than the *Character* values. The editor's suggested *Audience* value *'GP discussion group'* is here treated as being more generic than *'GP'*. In this case it makes sense since although participants won't necessarily know that its membership is

as broad as that described in Chapter 4, they may still choose it to mean any group of GPs.

In Table 7.9 it is the characters identified in the story that are variously suggested as groups that may be receptive to the story's telling. According to the traditional "artificial" story model, the readers will identify with a principal role (people like us); where the driving action ultimately derives from some tension between this and an opposing role (people like them). The emotion evoked meanwhile will often gain from a peripheral role (the other), that though caught up in the action is powerless to alter its course

In Table 7.10 it is the narrators of the story that are suggested as potential audiences. According to the "natural" Point model of narration, the narrator will cast themselves as protagonist. So again, these are stories for and about people like us, i.e. domain stories.

In either table, non-entries are just as significant; it says that potential audiences are not necessarily the groups represented either by the characters in the story or the narrators of the story. The set that is represented least in these tables is *d*; the set that is represented most is *a*.

Table 7.9

Characters as Potential Audiences (stories for and about *us* or *them* or the affected *other*)

Story	Value	Audience	Us	Them	Other	Set
1	[Health Visitor/s]	3	1			*a*
	GP discussion group...	6	1			
	[**Nurse…/s**]	2	6	1		
	[Nurse Practitioner/s]	1	5			
	[Specialist Nurse/s]	1		1		
	[Computer Operator/s]	2	1			
	[Fund Manager/s]	2		1		
	Hospital manager/s	1		1		
	NHS	1			1	
5	**GP discussion group...**	9	6		1	
	[Principal GP/s]	1			1	
	[Clinical Psychologist/s]	4	1			
	[Psychiatric Nurse/s (CPN/s)]	2	1		1	
	[Receptionist/s]	1		1		
	[Practice Manager/s]	1		1		
	Government	1		6		
9	**GP discussion group...**	9	9		1	
	[Principal GP/s]	2	1			
	[Locum GP/s]	2	1			
	[Practice Manager/s]	2		1		
	[Fund Manager/s]	1		2		
	[GP Registrar/s]	1			1	
2	**GP discussion group...**	6	7			*b*
	Emergency personnel…	1			1	
6 (S)	Vet/s	2		4	2	
10	**GP discussion group...**	6	6			
	[Nurse/s]	1		1	1	
	Parent/s	2			1	
3	**[Community Pharmacist/s]**	4	7			*c*
	[Pharmacist/s]	2			1	
	Patient	1	1		7	
7	**Patient…/s**	2	7			
	Nurses…	2		6		
	GP discussion group...	7			2	
11	**Coroner/s**	2		4	2	
	GP discussion group...	7	5	1	1	
	[Psychiatric Nurses (CPN/s)]	1			1	
4 (S)	[Psychiatric Nurse/s (CPN/s)]	2	1			*d*
	[Counsellor/s]	2	1			
8	**GP discussion group...**	8	1			
12 (S)	**GP discussion group...**	6	1			

Table 7.10

Narrators as Potential Audiences (an indicator of domain stories)

Story	Value	Freq$_{Audience}$	Freq$_{Narrator}$	Set
1	**[Nurse…/s]**	3	**5**	*a*
	[Nurse Practitioner/s]	1	**5**	
5	**GP discussion group...**	**9**	**7**	
9	**GP discussion group...**	**9**	**6**	
2	**GP discussion group...**	**6**	**7**	*b*
6 (S)	**Pet owner…**	3	**7**	
10	**GP discussion group...**	**6**	**7**	
3	**[Pharmacist…]**	4	**4**	*c*
11	**[General Practitioner (GP).../s]**	**7**	**7**	
4 (S)	**GP discussion group...**	**3**	**4**	*d*

7.3.3.4 - The reach of stories

This section provides evidence that the potential reach of stories often exceeds the domain of their original telling. Table 7.11 collects together those stories that trigger suggestions of audiences outside general practice medicine. Table 7.12 contains stories that potentially reach beyond medicine altogether. In Table 7.11 story *set d* (Professional, Social and Technological) has least presence but in Table 7.12 it has most. Even though stories drawn from social and technological discourse indicated by (S) and (T) respectively may have greater reach, stories drawn from professional discourse are also represented here.

Table 7.11

Potential outside General Practice

Story	Audience	Freq	Set
1	Hospital manager	1	*a*
	NHS	1	
2	Prospective doctors interested in working in rural communities	1	*b*
	Emergency personnel	1	
	Health authorities	1	
6(S)	vets	2	
10	Health Service managers	1	
	Nursing staff	1	
3	health trust admins	1	*c*
	patients	1	
	patient support organisations	1	
	hospital pharmacy	1	
7	Triage Nurses	1	
	patients	2	
	Special illness organisations	1	
	Self help organisations	1	
	NHS Direct staff	1	
11	Coroners / Trainee Coroners	3	
	Medical students	1	
	patients	1	
	Carers of people with dementia	1	
	Alzheimers Society	1	
4(S)	Colleague	1	*d*

Table 7.12

Potential outside Medicine

Story	Audience	Freq	Set
5	People	1	*a*
	Government	1	
9	Students	1	
2	people in general	1	*b*
6(S)	pet owners…	3	
	people at large	1	
	children	1	
10	parents…	2	
3	Newspaper readers	1	*c*
	funding agency (Govmnt?)	1	
4(S)	Friend	1	*d*
	anyone	1	
	The author (individual as well as the rest of the group) of the message that this is in response to	1	
8	Acquaintances	1	
	dinner party guests	1	
	Travel Insurance company	1	
12(T)	Acquaintance	1	

7.3.3.5 - The interchangeable nature of Feature and Character

These next three tables provide evidence as to why selection lists might be regarded as restrictive and that deciding which attribute label to use can be difficult. In Table 7.13, agency or personality is bestowed on an entity, event, situation or process. This was predicted for *Antagonist* and indeed many of the editor's Antagonists are personifications; the surprise is the degree to which it occurs and that *Other Character* is also regarded in this way. The reverse happens in Table 7.14: something that looks very much like an actor is denied both agency and personality by being suggested as a *Feature*, even though the evaluation prototype describes the *Feature* attribute as "Imagery, ideas and emotions etc. evoked or contained". In Table 7.15, the same value

is regarded as a *Feature* of the story but also something greater; that is, it occupies two levels in a perceived hierarchy. In this subsection, all story sets are fairly evenly represented although *set b* appears most.

Table 7.13

Personifications

Story	Attribute	Value	Freq	Set
1	Antagonist	Traditional ways of nursing	1	*a*
		Primary Care Trust Management	1	
	Other Character	NHS	1	
5	Antagonist	**Government**	**6**	
		Read code system	**4**	
		Mental health	**1**	
9	Antagonist	**Recruitment situation**	**5**	
		Bad contract	**4**	
		Mass resignation	**2**	
		Feeling of sadness or disgust in the profession	1	
	Other Character	**Silent majority**	**5**	
2	Antagonist	**Wild nature**	**3**	*b*
		An isolated rural community	1	
		Difficult terrain	1	
		Tragic events	1	
		Poor medical facilities in remote areas	1	
	Other Character	Nature	1	
		Medical equipment	1	
6 (S)	Antagonist	Poisonous cage	1	
		Zinc	1	
10	Antagonist	**Uncertainty**	**3**	
		14 hour wait in A&E	**4**	
		Unnecessary call-outs	1	
	Other Character	2 other confirmed cases	1	
3	Antagonist	**Hospital**	**6**	*c*
		System	**6**	
7	Antagonist	Hospital process	1	
	Other Character	STD dept	1	
11	Antagonist	System	1	
		PM procedure/reliability	1	
		Registry of Births, Deaths etc	1	

		Medical conventions	1	
	Other Character	hospital (no need for referring to it?)	1	
		witness (or their absence)	1	
		Church	1	
4 (S)	Antagonist	Medical System	1	*d*
8	Antagonist	The Sicilian hospital	1	
		Italian Health System	1	
12 (T)	Antagonist	**Email headers**	**1**	
		NHS (i.e. their lack of infrastructure)	1	
		Management	1	
		IT System	1	
	Other Character	FilmFour	1	

Table 7.14

Depersonalisation – Features with Character potential

Story	Value	Freq	Set
9	GPs and their feelings	1	*a*
2	**Children**	**3**	*b*
2	**Babies**	**3**	*b*
10	**Triage nurses**	**5**	*b*
	2 other children asleep upstairs	**1**	
4 (S)	cleaners	1	*d*

Table 7.15

Features as Hierarchical

Story	Attribute	Value	Freq$_{Attribute}$	Freq$_{Feature}$	Set
9	Antagonist	**Mass resignation**	**2**	1	*a*
		Feeling of sadness or disgust in the profession	1	1	

7.4 - The Relate attributes

There are two ways in which stories might be related: to each other (related story) and to the reader (related reader). Annotators' explanations are given in the following two subsections.

7.4.1 - Suggestions of story-story relations

The apparent readiness not just to find relations but to explain them too was quite unexpected given the small size of the story base and the widely diverse stories selected for inclusion.

The matrix in Table 7.16 below shows the number of links between any given pair of stories. The numbered elements in the first row represent the focal stories, i.e. those indexed during phase 1. The numbered elements in the first column represent the potentially related stories, i.e. the eleven stories that a given focal story might be linked with.

The explanations given for each pairing are reproduced separately in Table 7.17. As previously, stories marked with (S) or (T) were drawn from social and technological discussion areas respectively. It can be seen from the matrix that for the focal stories, the two social stories (04 and 06) had least links and Story 11 had most. For the non-focal stories, Story 11 had least links and Stories 01 and 03 had most. Stories 07 and 08, it will be recalled were drawn from the same discussion thread (●) but these were related just twice when 07 was focal and once when 08 was focal. The two social stories were

related to one another only twice. A zero indicates the absence of links in at least one direction, and bold font indicates absence in both directions. Regardless of direction, the story with the greatest number of links is 09, and the one with the least links is Story 06. No firm conclusion can be drawn regarding the directionality of story relations. However, if the relations were entirely non-directional, one would expect no difference in the number of relations identified in either direction. The technological story (12) is the only one that relates equally in either direction. Story 11 at the other extreme shows a difference in the numbers of relations in either direction of 11. The next largest directional difference is 6.

Table 7.16

Story-story relations matrix
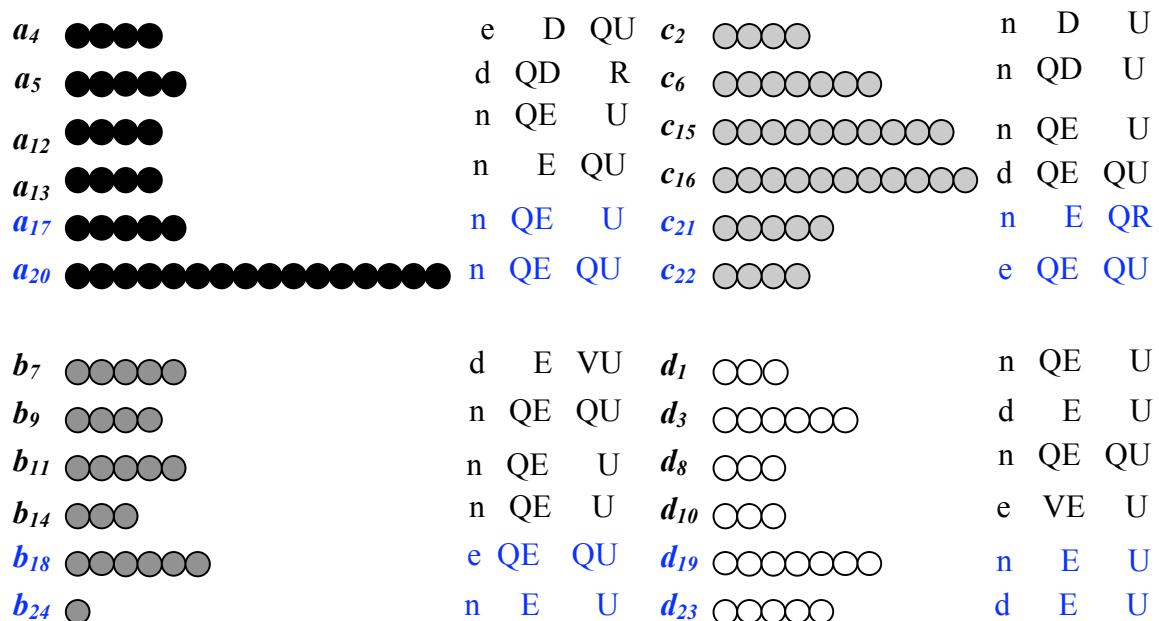
Focal Non focal	01	05	09	02	06 (S)	10	03	07	11	04 (S)	08	12 (T)	Totals
01	-	1	1	**0**	**0**	2	**0**	2	4	1	1	4	16
05	1	-	2	**0**	**0**	**0**	1	1	3	0	**0**	0	8
09	1	3	-	4	**0**	**0**	1	1	**0**	2	0	1	13
02	**0**	**0**	2	-	**0**	1	**0**	2	1	1	4	1	12
06 (S)	**0**	2	1	**0**	-	1	**0**	1	3	0	**0**	**0**	8
10	2	**0**	1	2	1	-	**0**	2	0	1	3	**0**	12
03	**0**	2	2	1	1	**0**	-	1	2	0	2	3	14
07	0	1	1	**0**	**0**	4	1	-	1	0	1●	1	10
11	0	2	**0**	**0**	1	1	2	1	-	0	**0**	**0**	7
04 (S)	1	1	1	1	2	1	1	2	2	-	0	**0**	12
08	1	**0**	1	1	**0**	**0**	2	2●	**0**	1	-	**0**	8
12 (T)	4	1	3	**0**	**0**	**0**	**0**	0	2	**0**	**0**	-	10
totals	10	13	15	9	5	10	8	15	18	6	11	10	130

Before showing the explanations provided for the *Related Story* attribute, relative numbers of suggestions are given in Figure 7.11. The spheres alongside each participant

represent the number of relations they suggested. The character e, d or n indicates whether on the questionnaire, the participant judged this attribute as easy, difficult or neither to suggest values for. Also shown are their questionnaire responses to Phase 3 (relating the story) of the task, which could range between 'Very Easy' and 'Very Difficult', and the level of restriction felt generally which could range between 'Very Unrestricted' to 'Very Restricted'. What is most striking is that participants who judged the attribute to be difficult made most suggestions in relative terms whereas those who judged it to be easy made least. In terms of sets, participants assigned to the predominantly professional story sets made significantly more suggestions than those assigned to the more mixed sets. It is the quality of explanation that will be looked at next.

Figure 7.11

Numbers of participants' story-story suggestions with relevant questionnaire responses

a_4	●●●●	e	D	QU	c_2	○○○○	n	D	U
a_5	●●●●●	d	QD	R	c_6	○○○○○○○	n	QD	U
a_{12}	●●●●	n	QE	U	c_{15}	○○○○○○○○○○	n	QE	U
a_{13}	●●●●	n	E	QU	c_{16}	○○○○○○○○○○○	d	QE	QU
a_{17}	●●●●●	n	QE	U	c_{21}	○○○○○	n	E	QR
a_{20}	●●●●●●●●●●●●●●●●●	n	QE	QU	c_{22}	○○○○	e	QE	QU

b_7	○○○○○	d	E	VU	d_1	○○○	n	QE	U
b_9	○○○○	n	QE	QU	d_3	○○○○○○	d	E	U
b_{11}	○○○○○	n	QE	U	d_8	○○○	n	QE	QU
b_{14}	○○○	n	QE	U	d_{10}	○○○	e	VE	U
b_{18}	○○○○○○○	e	QE	QU	d_{19}	○○○○○○○	n	E	U
b_{24}	○	n	E	U	d_{23}	○○○○○	d	E	U

The explanations were offered in a variety of ways, and each has been categorized:

M = minimal (a compact account)
D = descriptive (a sentential account)
E = embellished (beyond descriptive)
P = personalized (identification with)
V = suggestive of value, belief, moral (not personalized)
G = genre classification (basic literary kinds)
T = topical classification (basic themes)
C = contrasting relationship identified
Δ = three-way relationship identified

For a given story pair, where two or more explanations happen to be very similar, the following symbol is used:

≈ = more or less equivalent to another participant's explanation

The remaining symbols help us make sense of the questionnaire data:

d = according to the questionnaire, relating the stories was difficult
e = according to the questionnaire, relating the stories was easy
n = according to the questionnaire, relating the stories was neither difficult nor easy
1 – 24 = participant
a – d = story set

Each story pair has its own partition in Table 7.17 below. Pairs from the same set are shown in italic. The first column indicates for each relation, which one of the pair is the focal story. The last column lists for each relation, the categories that the relation falls within. Not all categories of explanation are mutually exclusive; e.g. an explanation can be a descriptive account of topical relation, or an embellished account of a contrasting one, and so on. About one fifth of relations are between same set stories indicating that familiarity with the non-focal story doesn't increase its relatedness potential. However, directionality is more balanced among same set stories.

Figure 7.12 takes into account that some explanations fall within more than one category and shows the relative size of the various categories of explanation. Embellished or just descriptive accounts of story relations are very common but by far the most populous category of story relation is **V** which indicates that participants use values, morals and beliefs but in a generalised rather than a personalised way. **P** on the other hand is a personalised expression of a relationship and very few explanations fall within this category. Another rare category is **G** which is a straightforward literary genre classification, i.e. humour and tragedy.

Figure 7.12

Categories of story-story relations
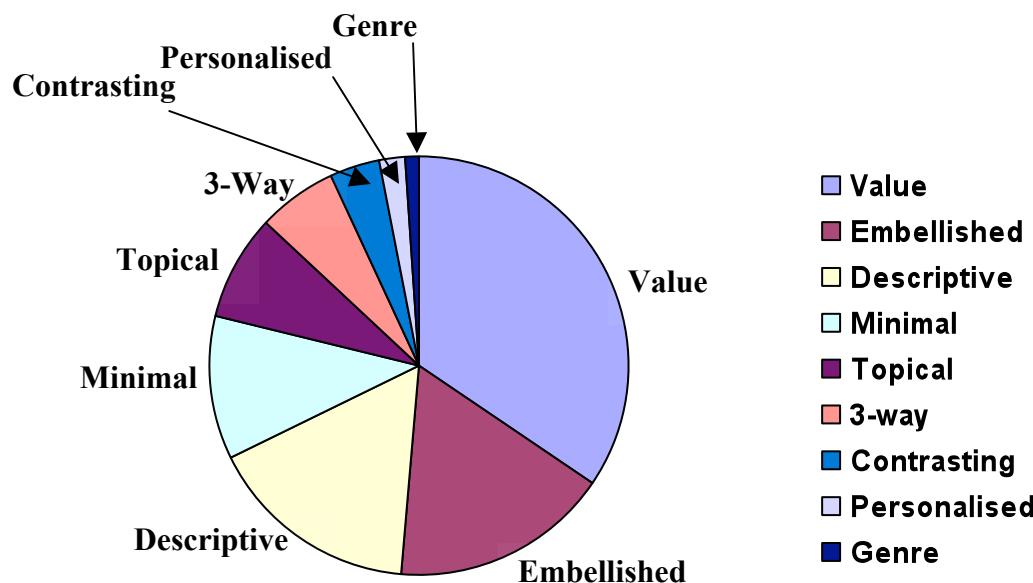
Figure 7.13

Deciphering a partition of the story-story relations table

Stories 05 and 09 ←——————— *same set stories indicated by **italic***

Focal	*Explanation*	*Participant*	*Attribute Rating*	*Categories*
01	*Both the stories are not completely happy with the way IT is trying to take over.*	*a₄*	*e*	*V*
05	*Technology not applicable to certain areas of health care*	*a₂₀*	*n*	*V*

story 01 as **focal**

story 05 as **focal**

*Non-medic indicated by **blue***

*Medic indicated by **black***

*Participant rates the attribute as **neither** difficult **nor** easy*

*Participant rates the attribute as **easy***

*Explanations are of type '**Value**'*

Table 7.17

Explanations and categories of explanation for story-story relations

Stories 01 and 04(S)

Focal	Explanation	Participant	Attribute Rating	Categories
01	The doctor refuses the new system	*a₅*	d	D
04(S)	The first story talks about a practitioner ending her practice, the second story pictures a scenario where practitioners may not be needed.	*d₃*	d	E

Stories 01 and 05

Focal	*Explanation*	*Participant*	*Attribute Rating*	*Categories*
01	*Both the stories are not completely happy with the way IT is trying to take over.*	*a₄*	*e*	*V*
05	*Technology not applicable to certain areas of health care*	*a₂₀*	*n*	*V*

Stories 01 and 07

Focal	Explanation	Participant	Attribute Rating	Categories
07	Superfluous	c_{15}	n	M
07	Changes in ways of working? Improved efficiency	c_{22}	e	D

Stories 01 and 08

Focal	Explanation	Participant	Attribute Rating	Categories
01	Different ways to manage public health.	a_5	d	D
08	They're about registration and proceedings.	d_8	n	D

Stories 01 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
01	*Speed of technological advance and job satisfaction.*	a_{17}	n	D
09	*Primary Care is changing*	a_{20}	n	V

Stories 01 and 10

Focal	Explanation	Participant	Attribute Rating	Categories
01	Ways to automate some parts of the treatment to reduce the work overloads on GPs.	a_{12}	n	V
01	Advance technology so we can do away with doctors?!	a_{20}	n	V
10	Technology is not a replacement for human vigilance.	b_7	d	V
10	Time – how long each procedure took	b_{18}	e	T

Stories 01 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
11	Whatever technology or highly common scientific technique will never be able to reach an ultimate truth.	c_6	n	V
11	One approach to the problem might not show all solutions or address all weaknesses.	c_{16}	d	V
11	Clear-cut definitions cannot grasp the variations in the human experience.	c_{21}	n	V
11	Similarity in looking at facts presented to come up with an outcome.	c_{22}	e	D

Stories 01 and 12(T)

Focal	Explanation	Participant	Attribute Rating	Categories
01	Both the stories find limitations and dissatisfaction with IT.	a_4	e	E
01	It contributes to this idea of bringing heavy IT into hospitals.	a_{12}	n	V
01	IT, software	a_{13}	n	M T
01	fantasies about what possibilities there are for IT clinical applications	a_{20}	n	V
12(T)	The overall theme is IT developments and the Health Service.	d_1	n	D T
12(T)	Like the first story, also in the second story technology is of no use without knowledge.	d_3	d	V
12(T)	The importance of IT	d_8	n	V
12(T)	complexity of technology	d_{19}	n	D

Stories 02 and 03

Focal	Explanation	Participant	Attribute Rating	Categories
02	Health care resources and economics.	b_{11}	n	T

Stories 02 and 04(S)

Focal	Explanation	Participant	Attribute Rating	Categories
02	Life of GP	b_{11}	n	D Δ
04(S)	The doctor has "no choice" but to work under current conditions.	d_{19}	n	E

Stories 02 and 07

Focal	Explanation	Participant	Attribute Rating	Categories
07	The treatment should be performed as soon as possible.	c_6	n	V
07	Contrasting positions: perceived waste (many nurses for one A&E) vs. perceived extent of GP's work (1 GP for 750 miles).	c_{16}	d	E C

Stories 02 and 08

Focal	Explanation	Participant	Attribute Rating	Categories
02	Because both texts are mentioning body injuries.	b_9	n	D
08	In the context that medical practice is variable according to location.	d_1	n	D ≈
08	How medical practices differ from place to place.	d_{10}	e	D ≈
08	first aid kit may have been helpful	d_{19}	n	V
08	talking about emergencies	d_{23}	d	T

Stories 02 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
02	Job satisfaction [is] relayed in both stories.	b_7	d	E
02	Life of GP	b_{11}	n	D Δ
02	The locum GP seems to be highly satisfied with his job (even if it is quite hectic and often tragic).	b_{14}	n	E
02	Close relationships – GPs and patients	b_{18}	e	T
09	Two very different descriptions of the same job.	a_{12}	n	D
09	Primary Care is great fun!	a_{20}	n	V

Stories 02 and 10

Focal	Explanation	Participant	Attribute Rating	Categories
02	Willingness to go out into the field and see patients rather than just have the patients come to you.	b_7	d	V
02	Both texts are sharing information about some medical experience.	b_9	n	D
10	Meningitis cases can happen anywhere so [a medical] kit is an essential part of a GP's requirements.	b_{24}	n	V

Stories 02 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
11	Who can make a qualified judgment: GP (knowing full history) or coroner (objective but only facts)?	c_{16}	d	V

Stories 02 and 12(T)

Focal	Explanation	Participant	Attribute Rating	Categories
12(T)	make the best of what you know/have	d_{19}	n	V

Stories 03 and 04(S)

Focal	Explanation	Participant	Attribute Rating	Categories
03	Experience of managing medications without ideal supply quantities in choosing use of dosage units	c_{21}	n	P

Stories 03 and 05

Focal	Explanation	Participant	Attribute Rating	Categories
03	There's this aspect of frustration with the system and perhaps looking for the best way of doing things?	c_{16}	d	E
05	Both the problems do not have an exact, complete solution, but it has temporary remedy.	a_4	e	E
05	Certain ways of doing things in NHS wastes money	a_{20}	n	V

Stories 03 and 06(S)

Focal	Explanation	Participant	Attribute Rating	Categories
06(S)	Money	b_{18}	e	M

Stories 03 and 07

Focal	Explanation	Participant	Attribute Rating	Categories
03	Suggest incompetence	c_{15}	n	M Δ
07	Wasted resources	c_{15}	n	M Δ

Stories 03 and 08

Focal	Explanation	Participant	Attribute Rating	Categories
03	Hospitals don't always work properly.	c_6	n	E
03	Concerns wastage of resources.	c_{15}	n	D Δ
08	The first story refers to a waste of casting material, and the second story refers to a waste of medicines.	d_3	d	D
08	over plastered	d_{19}	n	M

Stories 03 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
03	Counter-argument or questioning of the reasons for dissatisfaction.	c_{16}	d	E
09	Bulk prescription is not always the best, but is acceptable sometimes.	a_4	e	E
09	Reform	a_{13}	n	M

Stories 03 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
03	One's life can be compromised by someone else's mistake.	c_6	n	V
03	Suggests incompetence	c_{15}	n	M Δ
11	Both stories [are] about how failures in the system affect practitioners and patients.	c_2	n	E
11	Attributing blame to others	c_{15}	n	M

Stories 03 and 12(T)

Focal	Explanation	Participant	Attribute Rating	Categories
12(T)	Both stories picture a situation in which the NHS operates unprofessionally and without competence or consideration.	d_3	d	V
12(T)	Inefficiency	d_{10}	e	M Δ
12(T)	Communication breakdown, waste of money and time.	d_{23}	d	D

Stories 04(S) and 05

Focal	Explanation	Participant	Attribute Rating	Categories
05	Personal experience is a huge part of the diagnosis process (whether guidelines are available or not).	a_{12}	n	V

Stories 04(S) and 06(S)

Focal	Explanation	Participant	Attribute Rating	Categories
06(S)	Though the writer doesn't say so, it is assumed that he won't build these kinds of cages again for future pets.	b_{14}	n	V
06(S)	Choices – to continue with treatment / to leave practice	b_{18}	e	T

Stories 04(S) and 07

Focal	Explanation	Participant	Attribute Rating	Categories
07	An unpleasant and difficult situation in the past may lead me to a novel way of escaping the same situation.	c_6	n	P
07	Triage relies on experience to identify priority choice.	c_{21}	n	V

Stories 04(S) and 08

Focal	Explanation	Participant	Attribute Rating	Categories
04(S)	*Lack of freedom to make their own choices.*	*d_8*	*n*	*E*

Stories 04(S) and 09

Focal	Explanation	Participant	Attribute Rating	Categories
04(S)	Both stories refer to practitioners having to resign.	d_3	d	E
04(S)	Both are GP's	d_{23}	d	M
09	Growing number of ways of working in primary care	a_{20}	n	V

Stories 04(S) and 10

Focal	Explanation	Participant	Attribute Rating	Categories
04(S)	past experiences	d_{19}	n	M
10	Choices – parent had to use their judgement and Dr chose to see child	b_{18}	e	T

Stories 04(S) and 11

Focal	Explanation	Participant	Attribute Rating	Categories
11	The importance of making the correct choices.	c_{15}	n	E V
11	Broadly related in terms of 'choices & causes': each approach affords but also constrains certain choices and that might have certain consequences.	c_{16}	d	E

Stories 05 and 06(S)

Focal	Explanation	Participant	Attribute Rating	Categories
05	Diagnosis	a_{13}	n	T
05	Different aspects of the diagnostic process.	a_{17}	n	D T

Stories 05 and 07

Focal	Explanation	Participant	Attribute Rating	Categories
05	Political rather than clinical priorities NHS change	a_{20}	n	V
07	Labels can cloud recognition of symptoms	c_{21}	n	V

Stories 05 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
05	*To understand [people's] health stories, is necessary a long period [expertise/experience].*	a_5	d	V
05	*Opposite sides of argument.*	a_{17}	n	C
05	*GP grappling with new demands and changes in role*	a_{20}	n	V
09	*Emphasis on problems against generally benign viewpoint.*	a_{17}	n	C
09	*Growing problems of confidentiality, disclosure and anonymity -'big brother'*	a_{20}	n	V

Stories 05 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
05	Record, diagnosis	a_{13}	n	T
05	Historical ways of looking at medicine conditioning present clinical analysis	a_{20}	n	V
11	Mental health story	c_2	n	T
11	No one will probably go back to the PM results, at least in an official way.	c_6	n	E V
11	Back to front relationship: one is concerned about classifying things and the other is saying it is not being done properly.	c_{22}	e	C

Stories 05 and 12

Focal	Explanation	Participant	Attribute Rating	Categories
05	Clinical info is being computerised at its peril	a_{20}	n	V

Stories 06(S) and 07

Focal	Explanation	Participant	Attribute Rating	Categories
07	Sometimes diagnosis is not really as obvious as the author claims.	c_{16}	d	V

Stories 06(S) and 09

Focal	Explanation	Participant	Attribute Rating	Categories
09	Show primary prevention should be the target but difficult due resource and expectations.	a_{20}	n	V

Stories 06(S) and 10

Focal	Explanation	Participant	Attribute Rating	Categories
06(S)	*In the first case the vet missed obvious symptoms; in the second case the 'obvious symptoms' were recognized and ruled out.*	b_7	d	E
10	*About missed diagnoses and misdiagnoses.*	b_{11}	n	E

Stories 06(S) and 11

Focal	Explanation	Participant	Attribute Rating	Categories
06(S)	The death cause was not directly identified.	b_9	n	E
11	Tragedy	c_{15}	n	M G
11	PMs do not capture the context of a death only the mechanism	c_{21}	n	V
11	not having all available information	c_{22}	e	D

Stories 07 and 08 (●)

Focal	Explanation	Participant	Attribute Rating	Categories
07	Humour	c_{15}	n	G
07	Overreaction of a treatment	c_{16}	d	D
08	the sorry state of provision of care	d_{23}	d	V

Stories 07 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
07	A+E patients can be relieved that someone offers a seriousness value to their anxiety	c_{21}	n	V
09	Management's negative input to patient care pathways	a_{20}	n	V

Stories 07 and 10

Focal	Explanation	Participant	Attribute Rating	Categories
07	It gives a doctor's view of triage to complement the patient's view.	c_2	n	E
07	When triage nurse might not be the most qualified person to make a judgment.	c_{16}	d	V
10	It is important that triage nurses really do their stuff and do not act to simply adjust waiting time figures. In the first story the doctor is calling for good triage, and that is what we need, not just triage for triage's sake.	b_7	d	P
10	Experience is something desirable.	b_9	n	V
10	The stories seem to be opposing each other about the benefits of triage nurses.	b_{14}	n	C
10	Both stories based in a+e and both involve time management	b_{18}	e	D

Stories 07 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
07	*Diagnosis might not be always straightforward; sometimes it might be useful to make an obvious diagnosis and do it explicitly.*	c_{16}	d	E V
11	*Sometimes low level operators, instead of facilitating the work of the others, are impeding it or making it more difficult.*	c_6	n	E V

Stories 07 and 12(T)

Focal	Explanation	Participant	Attribute Rating	Categories
12(T)	Inefficiency	d_{10}	e	M Δ

Stories 08 and 09

Focal	Explanation	Participant	Attribute Rating	Categories
09	Since Italian way of treatment gives one solution it does not dissatisfy everyone but dissatisfaction exists because of overtreatment.	a_4	e	E

Stories 08 and 10

Focal	Explanation	Participant	Attribute Rating	Categories
08	In a way, the first story also describes a way of playing safe by using more cast than necessary.	d_3	d	E V
08	play safe	d_{19}	n	M V
08	GP's personal opinions	d_{23}	d	D

Stories 09 and 10

Focal	Explanation	Participant	Attribute Rating	Categories
09	Different perspectives of primary health care - family as compared to individual care	a_{20}	n	V

Stories 09 and 12(T)

Focal	Explanation	Participant	Attribute Rating	Categories
09	Disagree with the system	a_5	n	D
09	Different views of the working environment – positive and negative.	a_{17}	n	C
09	It can help and hinder care - but change in this area of IT is inevitable	a_{20}	n	V
12(T)	Problems facing the NHS in terms of Human Resources and Support.	d_1	n	E

Stories 10 and 11

Focal	Explanation	Participant	Attribute Rating	Categories
10	Diagnosis falsity	b_{11}	n	M

Stories 11 and 12(T)
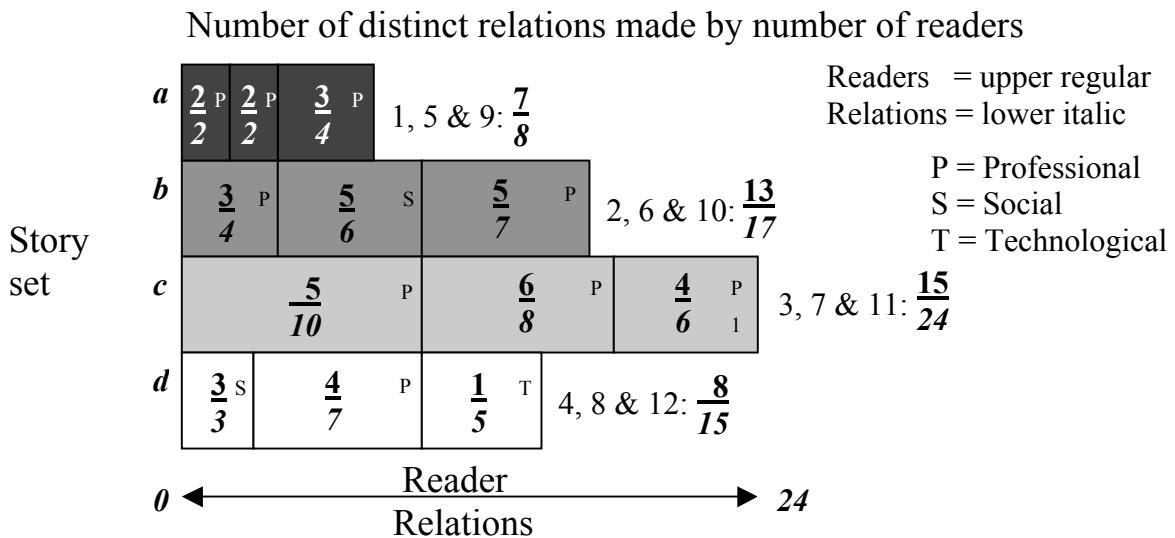
Focal	Explanation	Participant	Attribute Rating	Categories
11	Incompetence	c_{15}	n	M Δ
11	Knowledge of a subject is useless if not used for the purposes others are interested in (or need),	c_{16}	d	E V

7.4.2 - Suggestions of reader relations

Of the *Relate* attributes, fewer participants chose to suggest values for the *Related Reader* attribute than for the *Related Story* one. Figure 7.14 shows the number of reader relations made for each story and each set of stories. The stories in *set c* received most reader relations: Story 3 received the greatest number of suggestions and Story 7 was annotated by the greatest number of readers; in total, twenty four suggestions were made by fifteen readers. The stories in *set a* received least reader relations and only one reader related the same story more than once. Story 8 in *set d* received an additional reader relation from participant a_{12} who was the only participant to annotate more than the mandatory three stories. It is also the set with the highest frequency of multiple suggestions; although Story 12 received five reader relations, they were all made by the same reader.

Figure 7.14

Number of Related Reader suggestions per story and per story set

Number of distinct relations made by number of readers

Following the same format as Figure 7.11 for the *Related Story* attribute, Figure 7.15 shows how participants responded to the questionnaire regarding the *Related Reader* attribute and task part. Those who chose not to relate to any stories describe the attribute as difficult or as neither difficult nor easy to suggest values for. Participants who make most suggestions judge this attribute easy. Participants who make least suggestions consider it neither easy nor difficult.

Figure 7.15

Numbers of participants' reader-story suggestions with relevant questionnaire responses

a_4		n	D	QU	c_2	●●●●	d	D	U
a_5		n	QD	R	c_6	●●●●	n	QD	U
a_{12}	●●●●	n	QE	U	c_{15}	○	d	QE	U
a_{13}		n	E	QU	c_{16}	●●●	d	QE	QU
a_{17}	●	d	QE	U	c_{21}	●●●●●●●	e	E	QR
a_{20}	●●●●	n	QE	QU	c_{22}	●●●●●	n	QE	QU
b_7	●●●	e	E	VU	d_1		n	QE	U
b_9	●●	d	QE	QU	d_3	○○○○	e	E	U
b_{11}	●●●	n	QE	U	d_8		d	QE	QU
b_{14}	○	e	QE	U	d_{10}		n	VE	U
b_{18}	●●●●	d	QE	QU	d_{19}	○○	d	E	U
b_{24}	●●●●	n	E	U	d_{23}	○○○○○○○○	d	E	U

Readers recorded their relations to a story by selecting one or more items from a menu of medical roles and/or by free text entry. Story by story and set by set, the tables below show what participants selected or typed in the text box which was located next to the author's identity, shown here in italics. Again there was variation on the styles of input and these have been categorized as follows:

N = noun (the reader relates by a role perspective)
A = action (the reader relates by an action perspective)
K = knowledge (the reader relates by what they know)
S = story like (the reader starts to tell their own story in response)
R = reflection (the reader reflects on the story)
" = ditto (the reader relates to more than one story in the same way)

The difference between 'knowledge' and 'story', and 'action' and 'knowledge' can be slight. Stories are always highly personalized *"it happened to me"* whereas action and knowledge perspectives tend to be more observational and less specific even when described in the first person *"I know from my experience generally"*. In most cases, analysis of the data suggests that recalled action and knowledge responses fell just short of story responses and might have been story responses if this attribute was explained better. A reflective response is a little different; it is less spontaneous, more removed, and hence has less story potential. Those 'noun' types that were contained in the menu are shown in square brackets.

The remaining symbols help us make sense of the questionnaire data:

d = according to the questionnaire, relating the reader was difficult
e = according to the questionnaire, relating the reader was easy
n = according to the questionnaire, relating the reader was neither difficult nor easy
1 – 24 = participant
a – d = set

Figure 7.16 shows the most populous category for reader relations is the simple noun type. On the other hand, the area taken by knowledge, story, reflective and action types combined is far greater.

Figure 7.16

Categories of reader-story relations
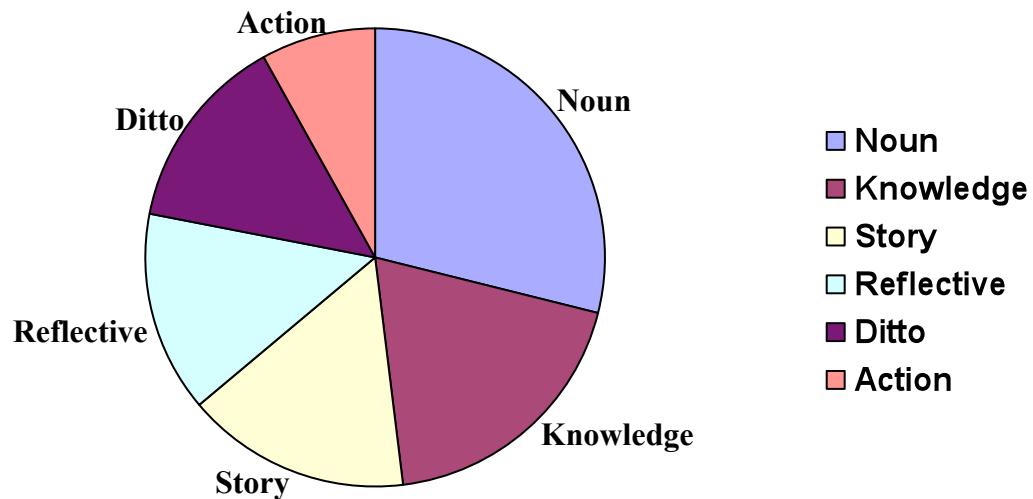
Table 7.18

Explanations and categories of explanation for reader-story relations

Story 1, *Set a (Christine, Nurse Practitioner, Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
My mum works in a hospital	a_{12}	n	K
[General Practitioner (GP)]	a_{20}	n	N "

Story 5, *Set a (Lesley, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I've had to deal with classification, although in a wholly unrelated domain.	a_{12}	n	S
[General Practitioner (GP)]	a_{20}	n	N "

Story 9, *Set a (John, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
There is the same difference in France, between rural and city doctors.	a_{12}	n	K
Health professional dealing with continuing change in National Health Service.	a_{17}	d	K
Primary Health Care Profession	a_{20}	n	N
[General Practitioner (GP)]			N "

Story 2, *Set b (Richard, Locum GP, Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I sometimes go walking in remote places; it is nice to know that help will be there if needed.	b_7	e	S
It's about life choices.	b_{11}	n	R
As a parent	b_{18}	d	N "
As a nurse			N "

Story 6(S), *Set b (Karen, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I have had a pet guinea pig which died from symptoms missed by a vet (my pet guinea pig had overlong teeth not allowing him to eat properly).	b_7	e	S
I like very much this kind of animal.	b_9	d	S
Pet owner whose dog is in surgery at this very moment.	b_{11}	n	S
Poor student	b_{14}	e	N
Recent trend in drugs used freq[uently] from health shops esp[ecially] containing trace elements like zinc & magnesium has created more incidences of poisoning.	b_{24}	n	K
Reminder of symptoms of zinc poisoning which can happen in humans as well.			K

Story 10, *Set b (Matthew, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I had a wait of 12 hours in A&E, having been triaged; subsequently I felt it would have been better to see a GP (or Practice Nurse) rather than go to A&E, if only to put my mind at rest more quickly.	b_7	e	S
Experience	b_9	d	R
Doctor's partner	b_{11}	n	N
As a parent	b_{18}	d	N "
[Nurse]			N "
In spite of having [triage] experience it is quite possible to miss diagnosis of meningitis as it doesn't always present as classical symptoms but if in doubt always admit the patient as clinical condition deteriorates fast.	b_{24}	n	K A
[Principal GP]			N

Story 3, *Set c (Neil, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
Tax payer	c_2	d	N
Patient			N "
Medicine can be really expensive	c_6	n	K
I've crashed many times into hospitals' irrationality			S
'Nobody cares' vs. 'there is always some price to pay'	c_{16}	d	R
Discharge coordinating nurse	c_{21}	e	A
Drug administrating nurse			A
[Nurse]			N
[Health Visitor]	c_{22}	n	N "
Experience of working in the NHS			K

Story 7, *Set c (Maurice, Senior Medical Advisor, Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
Patient who has sat in A&E for hours.	c_2	d	A
When you're sick, you just try to avoid any situation that prevents you from getting better quickly.	c_6	n	R
Out patient	c_{15}	d	N
Retrospectively, many things become clearer	c_{16}	d	R
I can imagine things are sometimes ambiguous, so all these stories kind of remind me of my decision making in ambiguous environments or circumstances.			R
NHS employee	c_{21}	e	N
Practicing nurse			A
Having worked in NHSDirect and triaging over the phone.	c_{22}	n	K A

Story 11, *Set c (Donald, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
Patient	c_2	d	N "
When you enter a hospital, as any other big structure, remember you'll probably be treated as a number, with no further interest in your person.	c_6	n	R
As a human being	c_{21}	e	R
As a nurse interested in people with dementia			K
To be a health visitor one has to have trained as a nurse first.	c_{22}	n	K
[Health Visitor]			N "

Story 4(S), *Set d (Yasmin, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I had to make conditioned choices in the past, based on what was expected of me and not on what I wanted.	d_3	e	S
Choices shape the future, some of which are led due to lack of options.	d_{19}	d	R
childhood experiences effecting outlook	d_{23}	d	R

Story 8, *Set d (Andrew, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
I suffered a fracture myself.	d_3	e	S
I have been hospitalized and I have experienced what nights in hospital are.			S
I am Italian and what is described in the story is exactly what happens in Italian hospitals.			K
I could say the same thing about the NHS.	d_{12}	n	S
better safe than sorry	d_{19}	n	R
Being on the receiving end (in the same boat) of medical treatment in different countries.	d_{23}	d	S
The difficulty in treating patients in an emergency situation.			K

Story 12(T), *Set d (Daniel, General Practitioner (GP), Discussion group member)*

Relations with the story	Participant	Attribute Rating	Categories
[Community (District) Midwife]	d_{23}	d	N
[Community (District) Nurse]			N
[Nurse]			N
Prescriptions not written or medications over prescribed			K
Breakdown in communication in the workplace between multi-disciplinary parties because of IT.			K

7.5 - Domain and naratological menus and their item selection frequencies

Participants' typed suggestions can of course be identical or at least semantically identical to menu terms. Either way, it is the results and not the process or the reasoning that is important in the present chapter. Therefore, provided that a suggestion is semantically identical to a menu item it will contribute to the frequency of that menu item. What is regarded as semantically identical here is an evident abbreviation for the full term or the use of different case, e.g. 'GP' and 'gp' are semantically identical to the menu term 'General Practitioner (GP)'. On the other hand, the frquency of a menu term

such as 'nurse' will not be affected if the participant types a term such as 'nurses' for the two are only lexically similar.

In this section all of the domain and narratological menus are reproduced in full except for the domain menu *Place*, which owing to its length is only partially given. The frequencies alongside items record their absolute popularities, and where the frequency is highlighted it indicates that the editor has contributed to it. Except for the pluralizing of *Audience* terms, the domain menus are in all other respects identical. Therefore they are displayed as one, with a frequency column for each of the five attributes: *Audience, Protagonist*, *Antagonist*, *Other Character*, and *Author/Reader Identity*.

The two most popular narratological terms are 'First-person' as a *Narrator* style and 'autobiographical' as a *Feature*. Notice that the editor selected only two from the *Feature* menu and that some menu terms are not used at all. *Audience* is the most used domain menu; *Other Character* and *Antagonist* are used least.

Figure 7.17

Narratological menus

Narrator	Freq	Feature	Freq
First-person	**43**	**Autobiographical**	**16**
Omniscient	**16**	Fact	13
Intrusive	**13**	Irony	11
Unreliable	**7**	disclosure	9
Unintrusive	3	**farce**	**8**
		tragedy	8
		comedy	7
		complex plot	6
		satire	6
		biographical	4
		fantasy	4
		hyperbole	4
		symbolism	4
		simple plot	3
		allegory	2
		parable	2
		legend	1
		meiosis	1
		metaphor	0
		metonymy	0
		poetic	0
		simile	0
		turning point	0

Figure 7.18

Domain menus

Value	Audience	Protagonist	Antagonist	Other Character	Author/ Reader Identity
General Practitioner (GP)	16	**29**	1	4	**12**
Fund Manager	7	0	4	0	0
Locum GP	3	**7**	0	0	**1**
Nurse	6	1	1	0	3
Health Visitor	7	1	0	0	2
Community Pharmacist	2	**7**	0	0	0
Practice Manager	7	0	2	0	0
Psychiatric Nurse (CPN)	5	2	0	2	0
Nurse Practitioner	2	**5**	0	0	**1**
Principal GP	5	1	0	1	1
Clinical Psychologist	6	1	0	0	0
Community (District) Nurse	5	0	0	1	1
Counsellor	4	1	0	0	0
Computer Operator	3	1	1	0	0
Pharmacist	3	0	0	1	0
Nurse Consultant	3	0	0	0	0
Public Health Nurse	2	1	0	0	0
Specialist Nurse	2	0	1	0	0
Receptionist	2	0	1	0	0
School Nurse	2	0	0	0	0
Drugs Liaison	1	0	1	0	0
Community (District) Midwife	1	0	0	0	1
GP Registrar	1	0	0	1	0
Continence Nurse	1	0	0	0	0
Senior Nurse Practitioner	1	0	0	0	0
Physiotherapist	1	0	0	0	0
Dietician	0	0	0	0	0
Midwife	0	0	0	0	0
Practice Nurse	0	0	0	0	0
Diabetes Specialist Nurse	0	0	0	0	0
Respiratory Specialist Nurse	0	0	0	0	0
Stoma Nurse	0	0	0	0	0
Occupational Therapist	0	0	0	0	0
Practice Pharmacist	0	0	0	0	0
Podiatrist	0	0	0	0	0

Figure 7.19
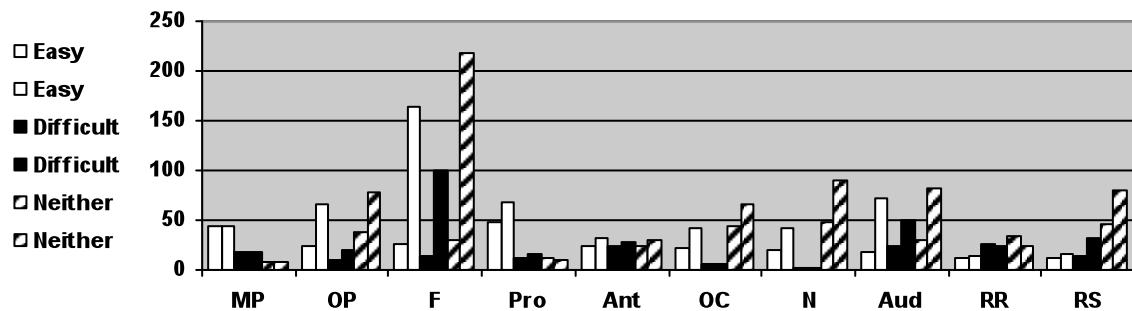
Place menu

Practicing/Reading/Writing Place	Freq
Bexley	**1**
Epping Forest	**1**
Milton Keynes	16
Northampton	7
South and East Dorset	1

7.6 - Participants' judgements of relative ease and difficulty of attributes

There are of course any number of quantitative analyses that can be made of this data but rather than continue with what participants did, we shall soon look at how and why they did what they did. These questions can only be answered by the recordings data which should reveal something of the ways in which participants engaged with the stories, interacted with the user interface and understood the task. This in turn will increase our understanding of the results data. The figure below attempts to collect much of this results data in one simple graph which shows for each attribute, the number of suggestions judged easy, difficult and neither according to the questionnaire responses.

Figure 7.20

Voting category size and associated suggestion count

This time the stories and the story sets are not distinguished and neither is the mode of suggestion because the question is simply whether the level of ease or difficulty makes a difference to the sheer numbers of suggestions. The frequency of the vote in respect of an attribute's ease or difficulty is paired with the number of values actually suggested for that attribute. The horizontal axis shows the attributes themselves and these are subdivided into the three possible voting categories: easy (white), difficult (black) and neither (diagonal stripe). Because one participant chose to annotate an additional story, the size of the combined vote for any given attribute shows the number of times stories were annotated ((24 x 3) + 1 = 73), not the number of participants (24). The left column in any pair gives the size of the vote and the right column gives the number of suggestions. For the *Main Point*, in all three cases, the voting category mirrors the suggestions category; this is because every participant was able to suggest the required single value. Only in three cases are the numbers of suggestions smaller than the respective voting category sizes: *Protagonist* voted as 'neither' and *Related Reader* voted as 'difficult' and 'neither'. It is evident that the 'difficult' pairs are more similar in size than either the 'easy' pairs and the 'neither' pairs. However, it is also evident that

'difficult' judgements do not stop participants from making suggestions but the results data on their own offer no clues as to why, a question that we can begin to answer in Chapter 8.

7.7 – Chapter summary

This chapter begins to answer the question of how untrained users actually use a particular implementation of the story annotation software tool. One of the ways we have chosen to measure this is by asking participants to complete a questionnaire. They were asked about the relative ease and difficulty they had with the indexical part of the task on the one hand and the relational part of the task on the other. We learned that a sizeable majority of participants found the relational part 'quite easy' but for the indexical part, judgements were more evenly spread. They were then asked how useful they found the menus and how restricted they felt generally. Almost all participants said that they felt either 'unrestricted' or 'quite unrestricted'; a smaller majority judged the menus to be 'useful' and the rest of the votes were distributed almost equally between 'very useful' and 'quite useful'. (The menu terms and their usage are presented in Section 7.5). Finally they were asked which attributes were most easy and most difficult to suggest values for. Taking both the negative side and the positive side into consideration, the attribute judged most easy was *Feature* and the attribute judged most difficult was *Related Reader*.

Section 7.3 took a detailed look at the twelve indexing frames and in particular, actual values being assigned to each of the indexical attributes. The number, variety and quality of suggestions participants made surprised us. We also looked in this section at the input methods participants chose. Although explicit agreement with the editor accounted for the majority of suggestions made, free text input and selecting from menus was also popular. We took the opportunity here to see if there was statistical difference between the medics and the academic researchers in their choices of input method. Our findings were that in seventy five per cent of cases, the two groups differed significantly in their usage patterns of the three annotation methods. Because group size was small and uneven, we are cautious about these findings but we will be recommending that more rigorous statistical analysis is done.

Closer examination of the annotations themselves made evident a number of interesting annotation behaviours which we labelled 'story summaries', 'attribute value transpositions', 'dimensional switching', 'personification', 'objectification' and 'going beyond the domain'. The first of these is a collective behaviour and offers a means by which the accumulation of points assigned to a given story might serve to summarise it. Turning to individual annotation behaviours we saw that one person's *main point* is another person's *other point* and one person's *protagonist* is another person's *antagonist* or *other character*. More interesting and quite unexpected was that participants were guided in their choice of suggestions for one attribute by referring to the suggestions they made for other attributes: they would suggest as *audience*, groups that had in common with the story's *narrator* or a particular *character*. Personification and objectification,

suggested by our review of the literature in Chapter 2 but also unexpected, is where objects in the story are regarded as agents and vice versa. Perhaps most encouraging given for our generic narratological model is that despite the guidance provided by the menus and editor suggestions, many annotators will suggest audiences not just outside general practice medicine but outside medicine entirely.

In the third part of the task participants were asked to relate stories one to another and to themselves. On average each participant made 5.4 story-story relations. The quality of explanations participants gave for the story-story relations was very high especially as no guidance was given. Nine categories of explanation were identified; the four most popular being *value*, *embellished*, *descriptive* and *minimal*. A *value* explanation is based on values but is not *personalised*, an *embellished* explanation is more than *descriptive* and a *descriptive* explanation is more than *minimal*. On average, each participant made 2.7 story-reader relations. Again the quality of many of their explanations exceeded expectation; six categories were identified. The four most popular were *noun*, *knowledge*, *story* and *reflective* depending on whether they were single name explanations, knowledge based ones, or explanations with story or reflective qualities.

Chapter 7

Chapter 8

Task behaviour Patterns

8.1 - Introduction

This chapter and the next continue to address the question of how untrained users use the story annotation tool. We do this by analysing the video recording of the task process and with attention on the task itself, thereby giving context to the results data examined in Chapter 7. User interface issues not central to the thesis are nevertheless important and these are discussed in Part C of the associated technical report (Kwiat 2009). Of primary interest here, are the behaviours of participants as they responded to the user interface parts that had expressly to do with the stories and the attributes. In the planning of the study it was decided not to require participants to give verbal accounts of their thoughts and actions as this might firstly, distract them from the already complex task, secondly, add to their anxiety about what was expected, and thirdly, affect the results data. However, because more can be learned from the talkative participant than the silent one, they were encouraged to talk at moments judged opportune by the mediator. Grounded theory (Glaser and Strauss, 1967) is used for category selection: each of the twenty four videos is viewed from beginning to end, and potential categories noted, i.e. potentially significant incidents. Then the videos are viewed again a number of times to extract the data, allow other categories to emerge and to refine existing ones. The method is not exact, since it is reliant on the audio-videoed user interface interaction from which participants' intentions can only be inferred. For certain incidents, it is judged that the inclusion of audio-video clips does not add much in terms of value. These are the high density membership categories that are best presented in more

quantitative ways; they will be the first to be discussed in Section 8.2 and 8.3. Then in Chapter 9, qualitative analysis begins.

8.2 - Quantitative Categories

Two quantitative categories have been selected. These are:

(1) The number of explicit visits to the focal story during the mandatory phases.

(2) Numbers and types of intermediate and final attribute values.

These two are interesting because they give an indication of the actual functionality of user interface parts, and the effects on functionality by such variables as story, attribute and task phase. Non-occurrences are just as telling. For example, if a participant refers back to the story when attending to attribute A but not when attending to attribute B, it may indicate that for this participant, B is easier than A in the context of a given story; and if this behaviour is repeated for the set of stories it is a strong indication that B is easier than A for this participant. On the other hand, if B comes after A in the sequence of story annotation, it may just be that the participant has memorised the story content.
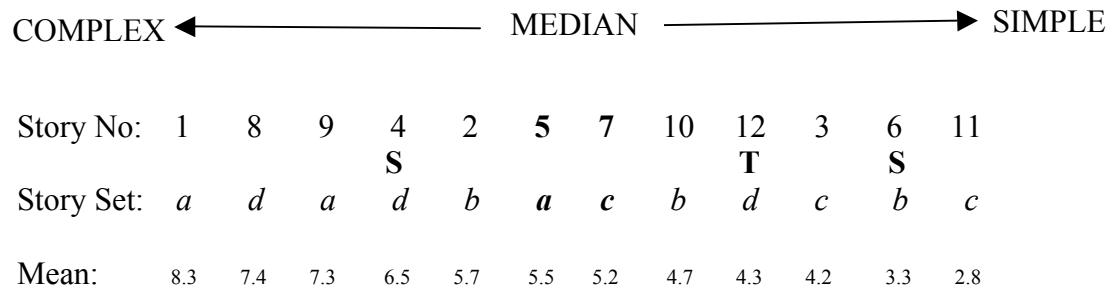
Another example of the importance of non-occurrence is where a participant does not use the menus. Again for later stories it may be that the contents of the menus are memorised by the annotator who considers them to be unhelpful in the current context; for the initial story it may indicate a preference for alternative forms of input or it may just indicate poor positioning of the menus within the UI.

8.2.1 - Reading the story

As well as an initial read on the *Point* screen, annotators will usually refer back to the story during its annotation. An explicit return is where the mouse scrolls or enters the story window for more than two seconds and is followed by an indication that the annotator is attending to something else for more than two seconds; i.e. two reads in quick succession are treated as one. A detailed table is included in Part C of the technical report associated with this thesis. If at the time of reading, the annotator is evidently focusing on a particular attribute, it is the attribute name in the table that receives the increment. When the focus is vague, it is the name of the screen (*Point, Character, Narrator & Audience* and *Relate*) that is incremented. Of course there will be occasions where the annotator is reading the text but not providing any such signal. There is also a lesser possibility that a signal is false: that the annotator's attention is elsewhere at the time. However, even given the uncertainty, the category is useful for it enables us to fashion, from the detailed table just mentioned, a complexity ranking for the stories (Figure 8.1), task parts (Figure 8.2) and even attributes (also Figure 8.2) although the uncertainty will be greatest here for the reason that the annotation screens usually allow the mark up of more than one attribute and we can never know for sure which attribute the annotator is attending to. These are all important factors in our analyses of the qualitative data.

Figure 8.1

Story Complexity

COMPLEX ◄──────────────── MEDIAN ───────────────► SIMPLE

Story No:	1	8	9	4	2	5	7	10	12	3	6	11
				S					**T**		**S**	
Story Set:	*a*	*d*	*a*	*d*	*b*	*a*	*c*	*b*	*d*	*c*	*b*	*c*
Mean:	8.3	7.4	7.3	6.5	5.7	5.5	5.2	4.7	4.3	4.2	3.3	2.8

According to the ranking in Figure 8.1, sets *a* and *d* contain mainly complex stories, i.e. those that require more returns to the text while sets *b* and *c* contain mainly simple ones, i.e. those that require fewer returns to the text. Length is not the only factor because although the shortest (Story 11) is the most simple, the longest (Story 2) lies close to the median and the most complex of all (Story 1) is relatively short. Discourse type may be another factor: the second most simple (Story 6) was drawn from social discourse (S) and either side of the median lie Story 4 which was drawn from social discourse (S) and Story 12 which was drawn from technological discourse (T). Something else to consider is whether this complexity ranking answers a symptomatic question posed in Chapter 7 by the statistical finding that only rarely do medic and KMi participants display similar patterns of using the three annotation methods: explicit agreement, menu selection and free text input. It appears not, since although one of the stories for which annotation pattern is similar (Story 1) is ranked most complex here, the other two (Stories 3 and 10) rank as relatively simple. We shall refer to Figure 8.1 and the one that follows (Figure 8.2) frequently throughout the chapter as we try to analyse the recordings data. If we should find patterns of category membership that indicate there are inter-set differences

as well as inter-story differences, it will be useful to provide here, a complexity ranking

for the sets themselves based simply on the complexity rankings of the individual stories.

Ordered from most complex to most simple then are: *a*, *d*, *b* and *c*, where *d* and *b* are

mixed sets and *a* and *c* are non-mixed.

Figure 8.2

Annotation Complexity

Task Part Complexity		**Attribute Complexity**	*Screen Sequence*
Feature	COMPLEX		*Point*
		Feature	*Main*
Relate		Related Story	*Other*
	↑	Other Point	*Feature*
		Protagonist	*Character*
Point	MEDIAN	**Other Character**	*Protagonist*
		Main Point	*Antagonist*
	↓	Related Reader	*Other*
Character		Antagonist	*Narrator & Audience*
		Narrator	*Narrator*
Narrator & Audience	SIMPLE	Audience	*Audience*
			Relate
			Story
			Reader

In this dual aspect view of task complexity in Figure 8.2, the number of initial reads is

ignored. The Task Part Complexity column which takes into account the number of

attributes comprising a task part, is more reliable than the Attribute Complexity column

which can only take into account those returns to the text that were evidently triggered by

a specific attribute; evidence that is often lacking.

The complexity ranking suggests co-occurring behaviours. The first is that as the mark

up of a given story proceeds, there are fewer and fewer referrals to the story text. The

second is that at the furthest point from the initial read, the number of referrals is highest.

That is, the *Feature* screen (see Figures 6.10 and 6.11 in Chapter 6) which is close to the initial read and the *Relate* screen (see Figures 6.20 and 6.21 in Chapter 6) which is most distant from it, have between them the highest number of referrals.

Suggestions as to why *Feature* comes high on the complexity scale are: firstly, that of all the attributes, it occupies the most physical space and therefore requires a screen of its own. Secondly, by its general nature, the *Feature* attribute will invite multiple values, whereas the more specific attributes may only do so. Finally, although participants were encouraged to be spontaneous in their mark up, judging by the number of referrals on the *Feature* screen, what participants actually did was comb the text for potential values.

The complexity ranking here finds some support from the task part duration data in Part C of the associated technical report: participants spend by far the greatest amount of time on relatively complex *Relate* and *Point* attributes; they spend least time on the relatively simple *Narrator & Audience*. On the other hand, there is disparity between the attribute ranking here and how they were rated in terms of ease and difficulty on the questionnaire, the template for which is shown in Figure 7.1 of Chapter 7. Recall from Figure 7.4 also of Chapter 7 that *Protagonist* and *Main Point* were rated easiest and that *Related Reader*, *Antagonist* and *Audience* were rated most difficult.

8.3 - Annotation patterns

In Part C of the associated technical report, a close view of individual participant annotation behaviours includes the source of all their intermediate suggestions as well as

the final ones. In this chapter however, the latter are brought together into what are referred to as the annotation patterns in order to view simultaneously, group and individual annotation behaviours. There are three annotation patterns: relative agreement with the editor, menu interaction and free-text suggestion. Although these have already been discussed in Chapter 7, both in the collective data of the bar charts and in the annotations data itself, it was without the benefit of the recordings and so the source of a suggestion was often uncertain, e.g. free input terms can appear identical to menu terms. The three diagrams presented in this section each concentrates on just one of these sources to give a more compact picture of the differences and similarities in annotation behaviours. Each diagram takes two pages; the story sets (*a* to *d*) and story numbers (1 to 12) are shown at the top of each page. Also at the top of each page is a colour coding key to the patterns.

The diagrams can be viewed in two ways: vertically to get a snapshot of the collective and individual approaches to a given story, and horizontally to get a snapshot of the collective and individual approaches to a given attribute. Each sphere comprising a pattern represents a given participant's interaction with a given attribute in respect of a given story.

A vertical arrangement of six spheres represents six participants' collective interactions with a single attribute in respect of a single story. A whole column arrangement represents six participants' collective interactions with all the attributes being considered for a single story. Horizontally viewed, three immediately adjacent spheres represent one participant's interactions with a particular attribute across all three stories in their set. A

single row of twelve spheres represent four participants' collective interactions with a given attribute for all three stories in their respective sets. A block of six rows represent all twenty four participants' collective interactions with that attribute across their respective story sets.

Rows containing blue text mark those participants making up the second session, i.e. the medics. In the single case of a participant annotating a fourth story from another set, their annotation of the additional story is shown as a small sphere attached to the relevant column and column set.
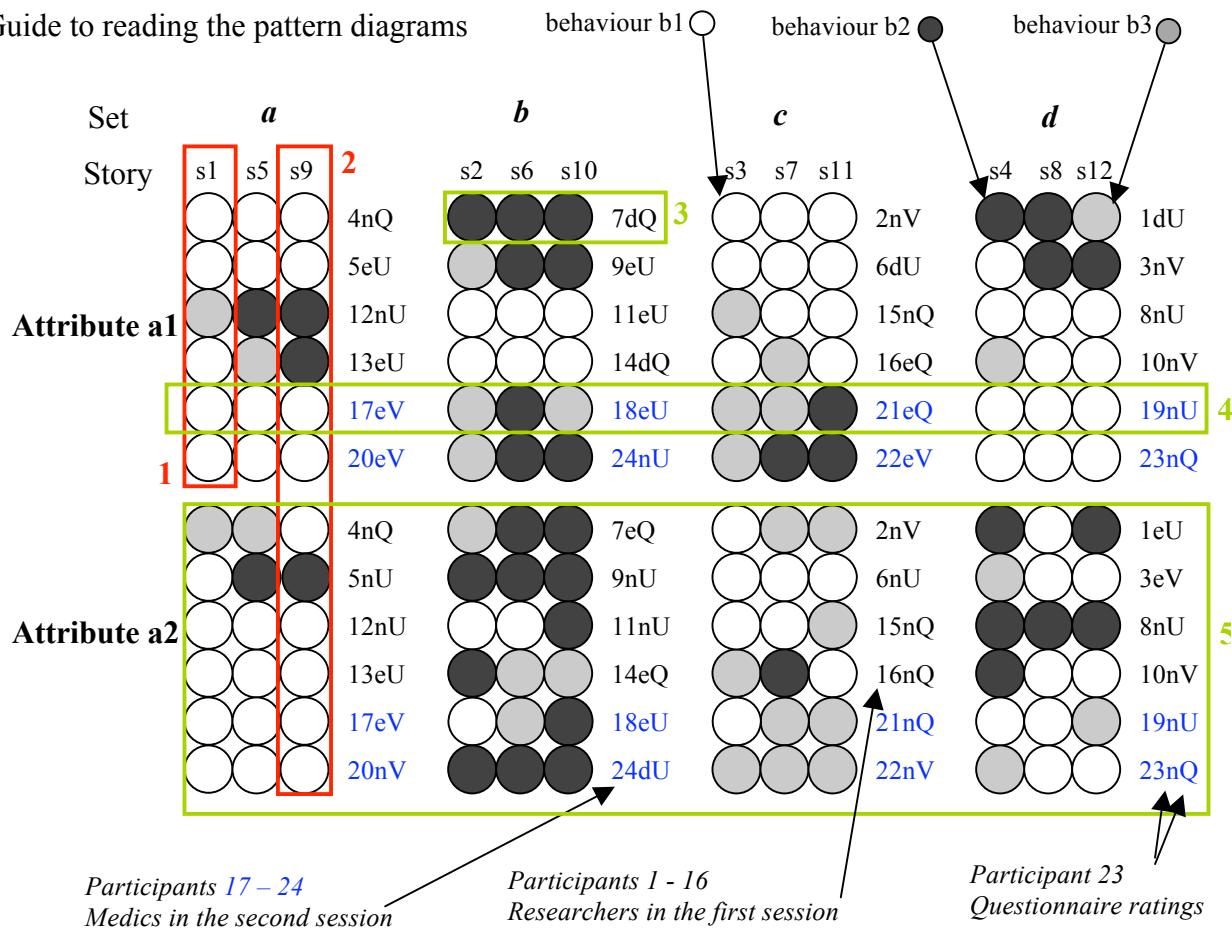
Appending each Participant number 1 to 24, are two codes taken from the questionnaire responses. The first indicates whether the participant judges the attribute to be **e**asy, **d**ifficult or **n**either particularly easy nor difficult to suggest values for (see Figure 7.4, Chapter 7) and the second concerns judgements about one of: restrictiveness (Figure 7.3), menu usefulness (also Figure 7.3) and task part ease (Figure 7.2). Following each pattern diagram, a bar chart shows more clearly the relationship between the patterns and relevant questionnaire data.

Figure 8.3 below provides a guide for interpreting the annotation pattern diagrams in this section. The red and green rectangles indicate just some of the vertical and horizontal views available. Rectangle 1 collects the (predominantly white) annotations made by all six participants assigned to a particular set (*a*) in respect of a single attribute (a1) and a single story (s1). Rectangle 2 collects the (slightly more varied) annotations made by those same participants, this time in respect of two attributes (a1 and a2) and a different

single story (s9). Rectangle 3 collects the (all black) annotations made by a single participant in respect of a single attribute (a1) but across all three stories in their set (s2, s6 and s10). Rectangle 4 carves out the annotations made by four participants. Each of these participants is assigned to a different set and so each of the twelve stories in the collection is covered but only in respect of a single attribute (a1). Rectangle 5 carves out the annotations made by all twenty four participants but again, only in respect of a single attribute (a2).

Figure 8.3

Guide to reading the pattern diagrams

8.3.1 - Annotation pattern: Agreeing with the editor

Figure 8.4 provides a visual representation of the first annotation pattern, agreeing with the editor. It shows participants agreeing wholly (white spheres), partially (spheres that contain grey), or not at all (black spheres) with the editor. Because the editor did not relate the stories, the two relational attributes are not included.

What does it mean for a participant to agree entirely with the editor regarding a particular attribute? It requires that the participant has ticked every box, and furthermore, has made no enduring, i.e. saved, additional suggestions or selections. Conversely, when a participant disagrees entirely with the editor, it means that they have not left any lasting ticks beside any of the editor's suggestions in respect of a particular attribute.

For all indexical attributes except *Main Point*, partial agreement can be either strong (patterned sphere) or weak (grey sphere). Strong agreement means that the editor has made more than one suggestion for a given attribute and that the participant agrees with over half of them, regardless of what else they do. Weak partial agreement requires only that the participant agrees with half or less of the editor's suggestions, regardless of what else they do. In the case of *Point* attributes, promotion and demotion constitute weak partial agreement with the editor's suggestion which is being promoted or demoted. In the case of promotion, this weak partial agreement counts as a tick against the *Other Point* attribute and can therefore contribute to strong partial agreement in situations where the editor has made more than one suggestion.

For participants 17 – 24 (blue) who are also permitted to agree with suggestions made by previous annotators, i.e. the knowledge media researchers, this alternative form of agreement is marked by a tick. White spheres because they indicate total agreement with the editor therefore cannot contain ticks.

Figure 8.4
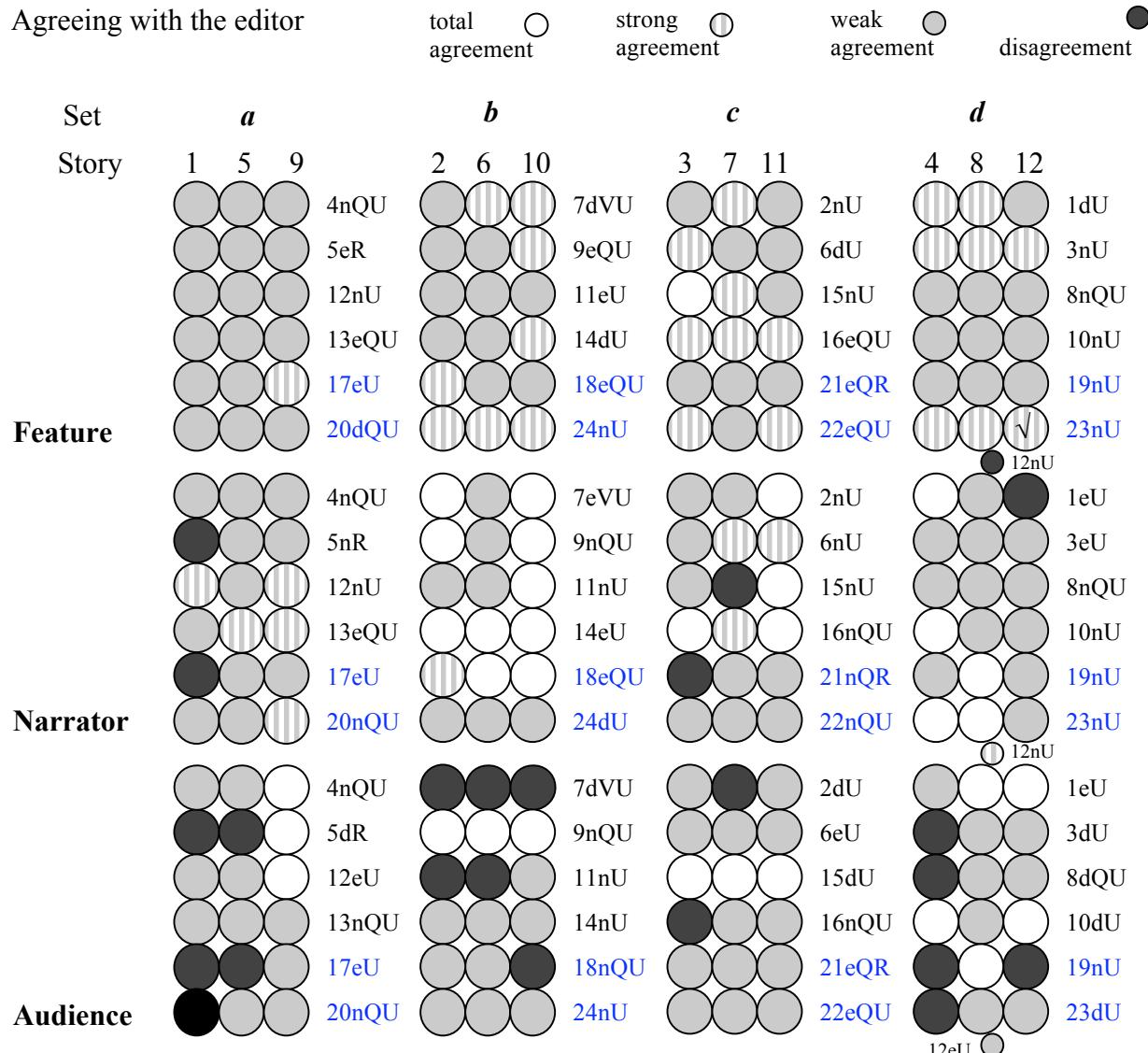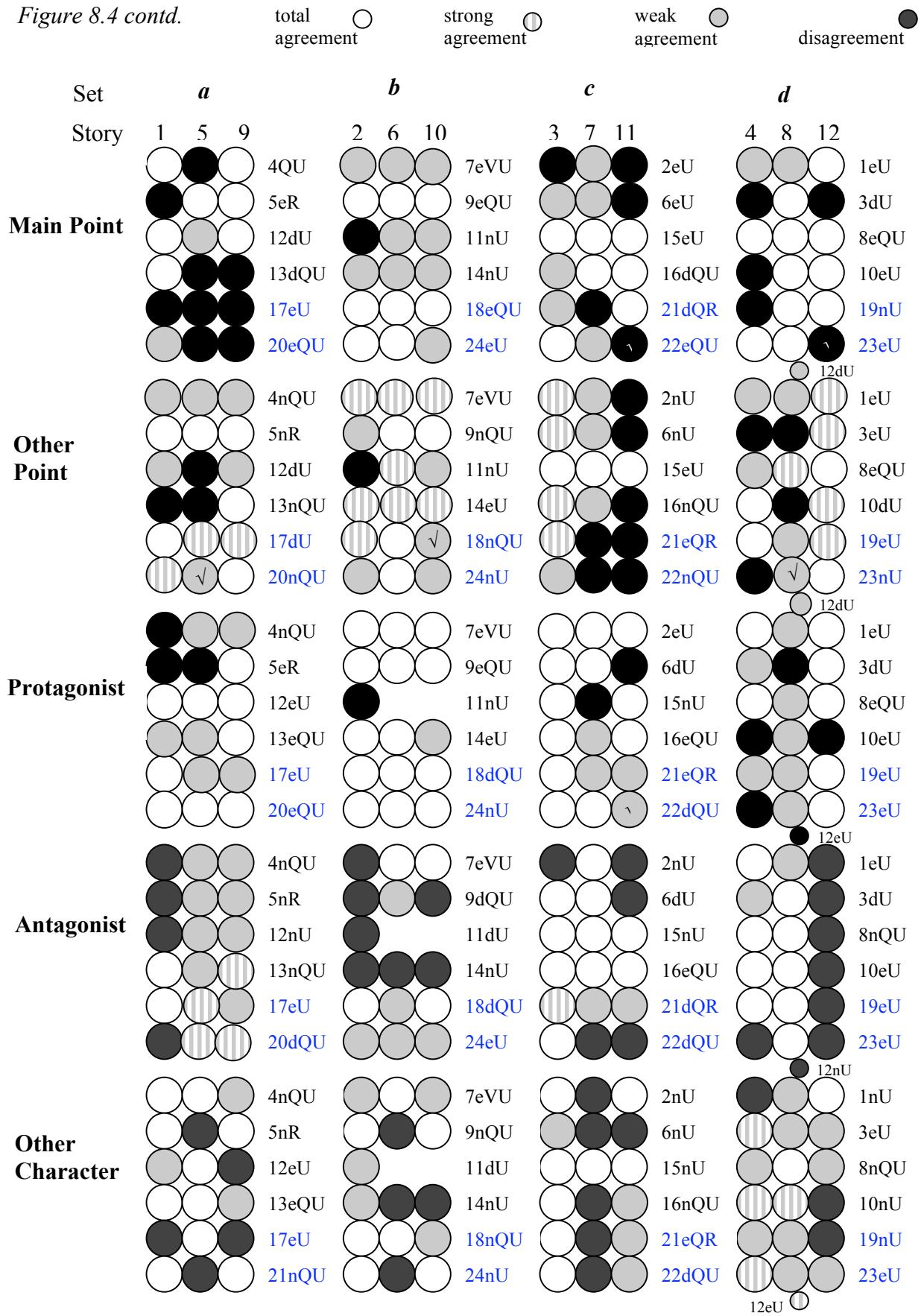
Figure 8.4 contd.

Generally, the editor's markup is very variable in terms of numbers of suggestions per attribute so that it rather depends on the attribute and story in question as to how informative differentiation of partial agreement is. It is more informative for attributes like *Feature* where the editor has consistently made several suggestions, and is less informative where the number of editor suggestions is few and inconsistent. The white spheres and the black spheres then are the most telling for they show a participant's tendency to be passive (total agreement) or active (total disagreement) in their markup.

Turning first to total agreement with the editor (white spheres): *Main Point* and *Protagonist* show considerably more white spheres than either black or grey. For all attributes except *Main Point* and *Audience* there is greater total agreement (white spheres) than total disagreement (black spheres). For the *Feature* attribute there is only one total disagreement with the editor. That disagreement came after the annotation of the mandatory three and during the annotation of a fourth story. It suggests an increase in confidence as annotators mark up more and more stories; they will be less inclined to agree even weakly with the editor and more inclined to make their own highly individual suggestions.

There is less total disagreement than any other kind but given that total disagreement is not the easiest option there is more than might be expected. The relatively high proportion of total disagreement with the editor regarding the *Main Point* however is not surprising for at least two reasons. Firstly, each annotator including the editor can suggest at most only one and so they will want to be sure that any suggestion they agree with is one they would otherwise make independently. Secondly, it requires a sentential

value and there are many ways of saying more or less the same thing. They might agree with the essence of the editor's suggestion but prefer to use alternative wording. If this is what participants are doing, it shows that detail is important to them. A third possible reason for total disagreement here is that the annotator wants to suggest something entirely different.

The highest number of total disagreements is in respect of the *Antagonist*. Again, this should not necessarily surprise since Figure 7.12 of Chapter 7 clearly shows that this character most often suggests personification to both the editor and subsequent annotators; as such it offers more latitude for suggestion. *Other Character* and *Audience* trigger similarly significant numbers of total disagreements, this time because participants show more creativity in their suggestions than the editor chose to be.
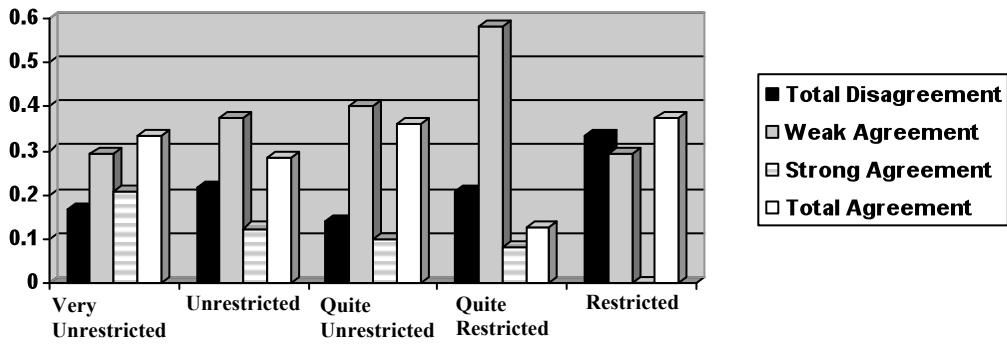
The attributes that show more partial agreement (grey spheres) than any other kind are *Other Point*, *Feature*, *Narrator* and *Audience*.

In Figure 8.4 the second questionnaire code attaching to each Participant number 1 to 24, indicates whether the task generally is considered to be Very Unrestricted, Unrestricted, Quite Unrestricted, Quite Restricted, Restricted or Very Restricted (see Figure 7.3, Chapter 7). We might expect participants who feel relatively restricted produce higher proportions of white and patterned spheres (tendency to passivity) and participants who feel unrestricted to produce higher proportions of black and grey ones (tendency to activity). What we actually see is that all groups are more active than passive except those who rate the task as Very Unrestricted, and they are only slightly less active.

Figure 8.5 below shows that the only approximate linearity to be found is strong agreement, which is higher than total disagreement among those participants who feel Very Unrestricted and then decreases to zero among those who feel Restricted.

Figure 8.5

Agreement with the editor and questionnaire responses regarding restriction felt

8.3.2 - Annotation pattern: Use of menus

Not all attributes have menus and for those that do, one of two types is appropriate: narratological terms or professional roles. Only the first have tooltip definitions on items, activated by highlighting the item. It quickly became evident in the earlier runs of the experiment that tooltip definitions, even as they are displayed, are not always acknowledged by the annotator; in later runs therefore, this functionality was explained if they signalled that they hadn't discovered it. It is difficult to tell for sure whether a participant has seen the tooltip definition or not without asking them, but their behaviour will usually provide a strong indication either way. The approach here has been the same as for between-screen navigational guidance, intervening sooner for participants that appeared less confident and later for those that appeared more confident about the task.

If, that is, a participant is making suggestions without apparently needing a menu or additional functionality, then it might be counter-productive to draw their attention to it. On the other hand, some participants appear more inhibited, perhaps confining themselves to the editor's suggestions and it is usually in such a case that they will be encouraged to explore the options.

Figure 8.6 shows the pattern diagram resulting from the collective and individual use of menus. Each horizontal arrangement of three adjacent spheres represents a single annotator regarding the menu attached to single attribute across the three stories in their set. Each six sphere vertical arrangement represents all six annotators assigned to a story set regarding the menu attached to a single attribute for just one of those stories. The first section of Figure 8.6 is for the two narratological menus and the second is for the two domain ones.

Alongside each Participant number is an indication of how useful they found the menus: **U**seful, **V**ery useful or **Q**uite useful (see Figure 7.3, Chapter 7). The spheres are filled as follows. Solid black means non-use, grey means that the menu was viewed but not selected from; at least if selections were made, the annotator has subsequently deselected. White means that at least one selection was retained. For the narratological menus, a grey or white sphere may contain a question mark; this means that the annotator has utilised the additional functionality of viewing term definitions. Selection quantities are not shown here but are provided in the detailed tables of annotators' selection sources in Part C of the associated technical report. Figure 8.6 just provides a general view of which attributes and which stories caused annotators to view menus, select from them or

to disregard them, and to give clues as to their reasons via relevant questionnaire responses.

Figure 8.6

Narratological menu interaction

Figure 8.6 contd.

not viewed ●   viewed only ◐   selected from ○
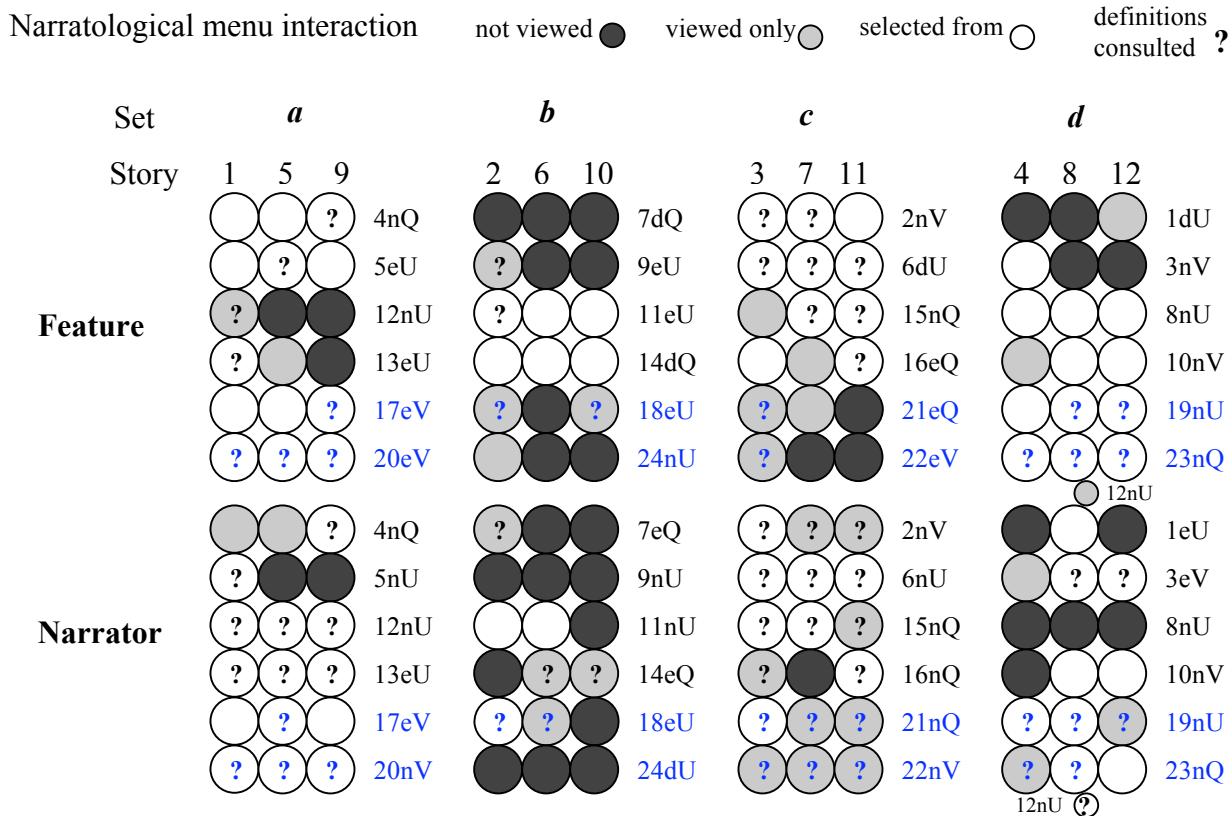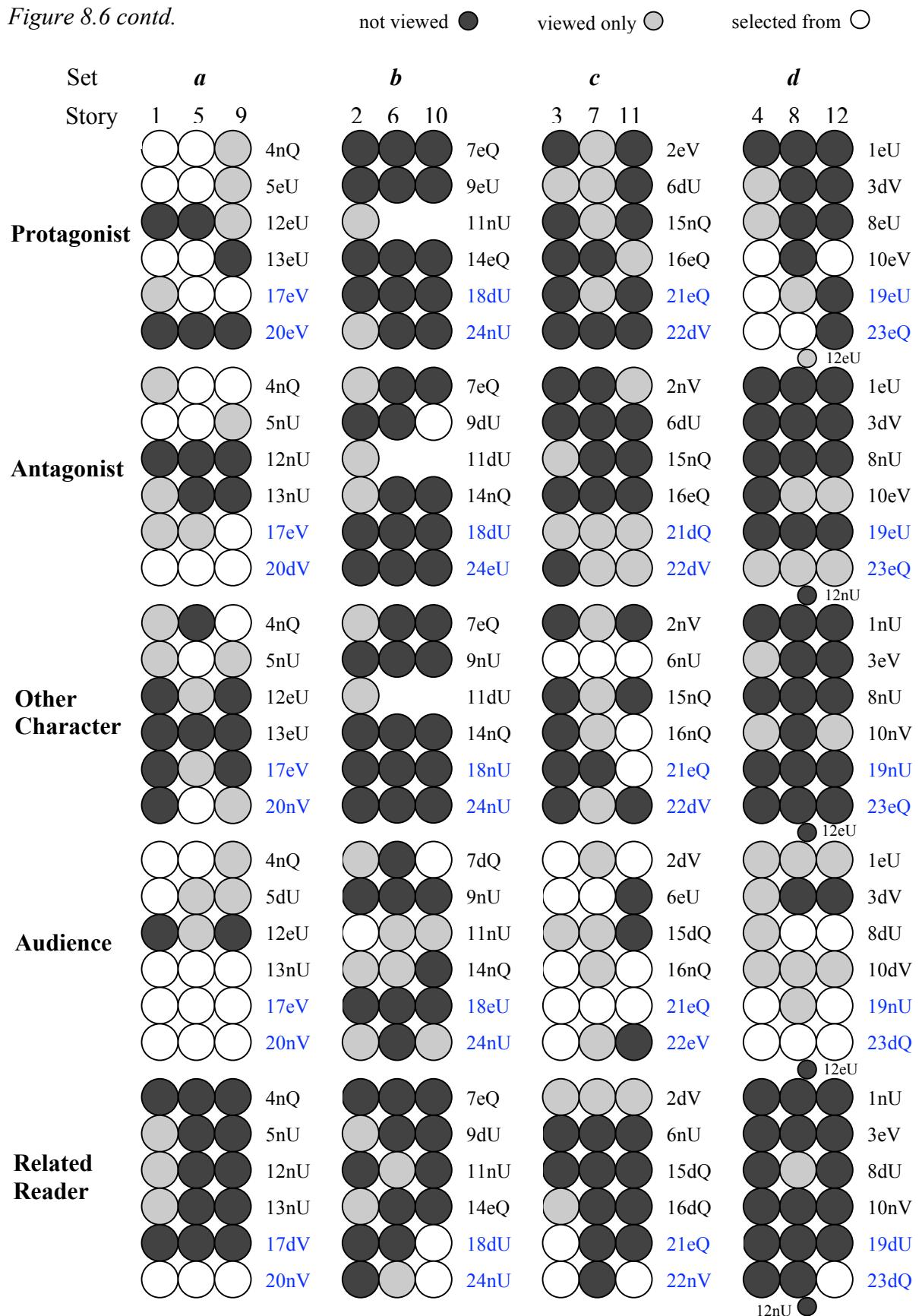
The most striking thing about Figure 8.6 is the variation. We cannot tell from such a small-scale study the degree to which this is due to variation of story type on the one hand and annotation strategy on the other. More likely it is that annotation strategy will anyway be influenced by story type. Even with the variation however, patterns have emerged. Firstly, professional domain menus are used less than narratological ones as evidenced by the dominance of black spheres in the second part of Figure 8.6. Why might this be? The most obvious explanation is that these are stories first and foremost, and the narratological terms will always lend themselves before speciality terms, even given that the domain is where these stories are sourced, what they are about and for whom they are targeted. The next thing to notice is that some domain menus are used more than others. The *Related Reader* menu is hardly used and this is because for three quarters of annotators it is irrelevant. The *Character* menus are also under-utilised compared to *Audience* where there is a dominance of white and grey spheres; what is interesting about *Character* is how the three menus are not explored equally. The reason why menus are more helpful for *Audience* suggestion is because unlike *Character*, the *Audience* is always potential. In other words, there are two ways in which these menus are searched: inspirationally as they tend to be for *Audience* and *Other Character* selection or deterministically as they tend to be for *Protagonist* and *Antagonist* selection. Generally, what seems to happen with the domain menus is that participants realise early that they are the same and that if for an explicit character and character type they are unhelpful, they may yet be helpful if the character and character type are implicit in the story. So initially, there may be a flurry of use; this will dwindle once they realise the menus are the same and will dwindle further once they understand the content and decide

that a menu is unhelpful for a given story. However, it will pick up again if the annotator becomes stuck for ideas.
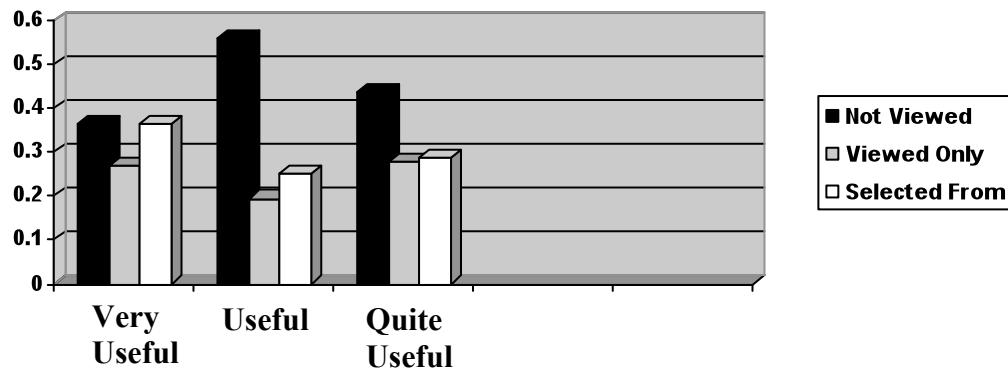
Tentatively one can say that there are some stories for which domain menus are usually regarded as irrelevant: the entire column is composed of black and grey spheres. For stories 2, 6 and 10 (*set b*) menus appear generally unhelpful. Then there are stories for which only certain of the domain menus are irrelevant, there is an absence of white in those column sections. For Story 3 the *Audience* menu appears helpful but the *Character* menus do not.

In the case of narratological menus, annotators of story sets *a* and *c* enquire more into the meaning of terms (many question marks) and actually select those terms (many white spheres), whereas annotators of story set *d* enquire less (many white spheres with few question marks) and annotators of story set *b* express little interest altogether (least white spheres and least question marks).

When annotators rate the menus as 'Very Useful', there is an expectation that they will have used them maximally. What we find in Figure 8.7 is that those who give menus this rating don't use them much more than annotators who rate them as only 'Quite Useful'. Meanwhile, annotators who rate them as 'Useful', in practice use them least.

Figure 8.7

Menu usage and questionnaire responses regarding menu usefulness

8.3.3 - Annotation pattern: Free input and non-input

The final annotation pattern is presented in Figure 8.8; it shows where annotators use free text input (white spheres) in place of or in addition to other forms of input (grey spheres). Also shown are the relatively rare occasions where annotators make no suggestions (black spheres). This time, the questionnaire response alongside the Participant number indicates whether they found the relevant task part, i.e. indexing the first eight and relating the last two, **V**ery **E**asy, **E**asy, **Q**uite **E**asy, **Q**uite **D**ifficult or **D**ifficult.

Figure 8.8

Use of free text attribute values — free text input ○ — alternative input ◔ — zero input ●
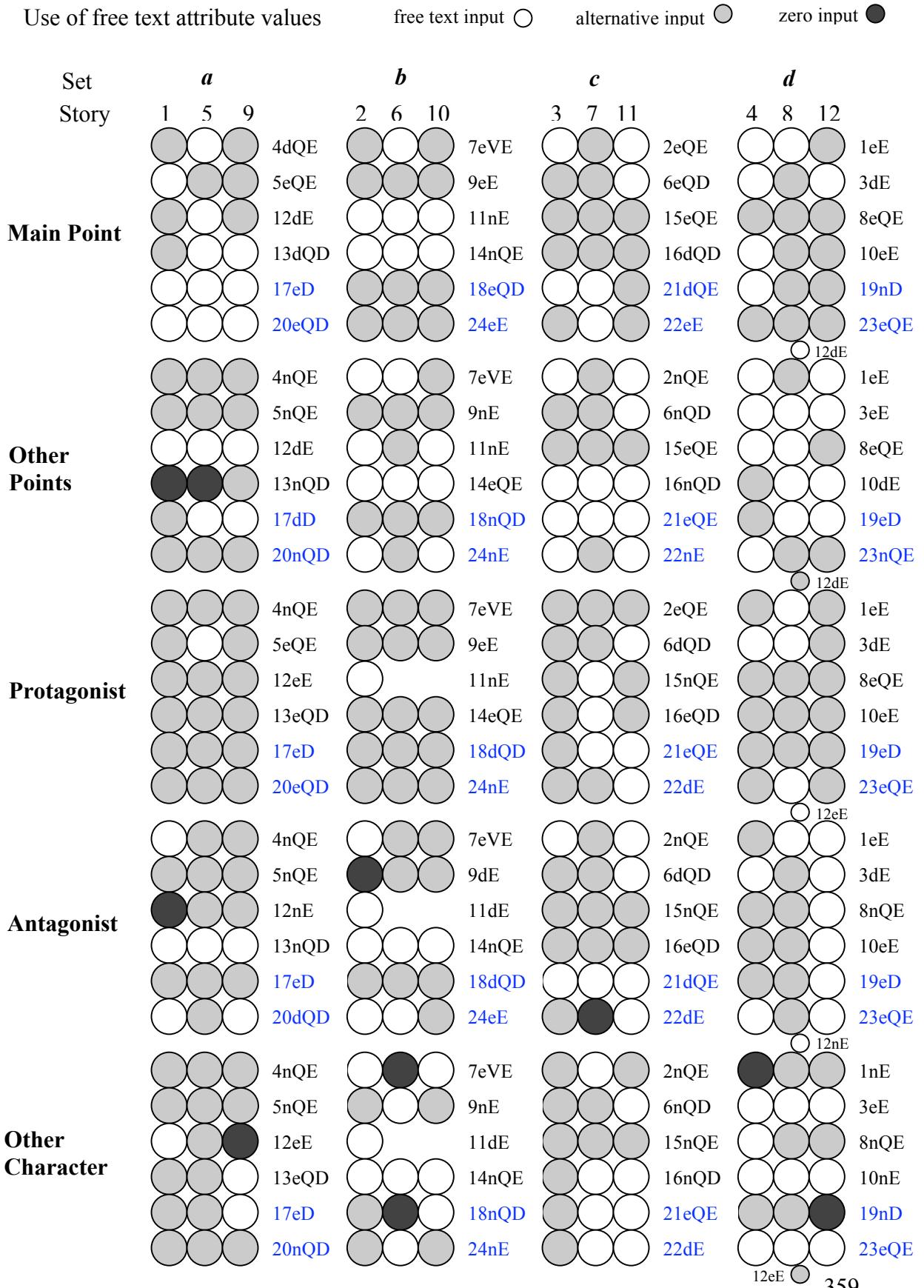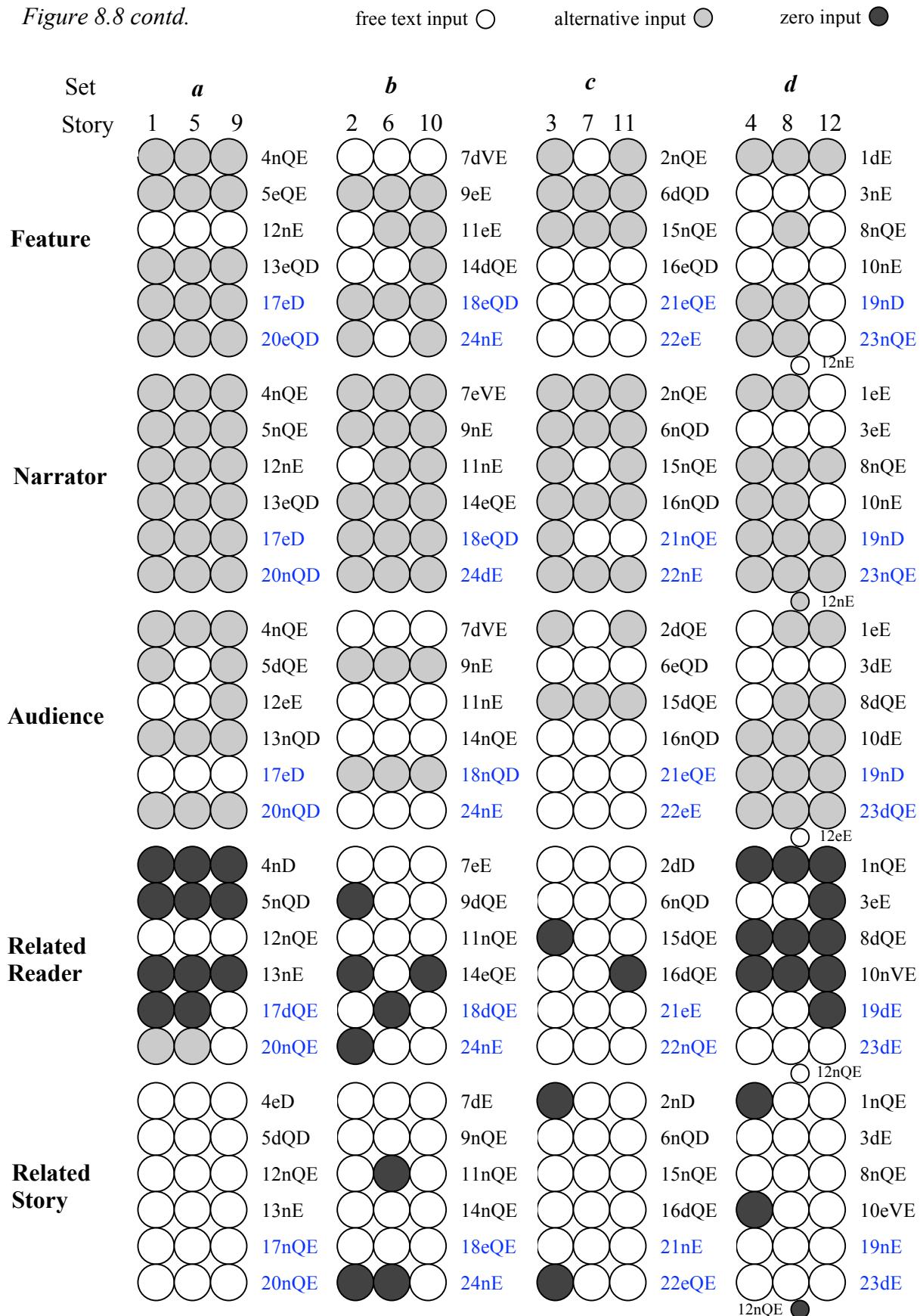
Figure 8.8 contd.
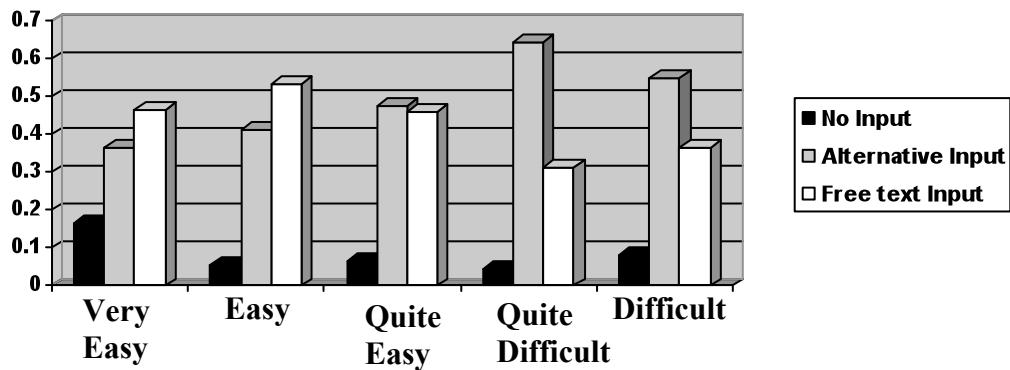
Except for *Related Reader*, it is very rare for an annotator to make no suggestions at all for an attribute. Notice however that even here, sets *b* and *c* rarely leave blanks (few black spheres). Aside from *Related Story* which only allows free input, and aside from *Related Reader* which offers a menu but of medical professional roles that can only apply to annotators in the second session, the attributes receiving most free input (white spheres) are *Other Point* and *Audience*. Meanwhile, alternative forms of input (grey spheres) are preferred for the attributes *Narrator* and *Protagonist*.

We might expect positive correlations between white spheres and relative ease ratings on the one hand and black spheres and relative difficulty ratings on the other. What Figure 8.9 actually shows is slightly more complicated however. Participants who rate the task part as relatively easy tend to produce more white than grey spheres, and participants who rate the task part as relatively difficult tend to produce more grey than white ones. Beyond that, the greatest disparities between non-input, alternative input and free text input are to be found among participants who rate the task part as Quite Difficult.

Figure 8.9

Use of free text input and questionnaire responses regarding levels of ease and

difficulty

8.4 – Chapter summary

Chapter 8 has begun our look at the recordings data but only those parts that can be

discussed wholly in quantitative terms, realising that this will always be somewhat

unsatisfactory. The first two diagrams rank respectively: the relative complexity of

the individual stories in the collection and of the individual story annotation schema

attributes. Immediately, difference between the latter and answers given in the

questionnaire is evident. For example, *Protagonist* positioned on the 'complex' side

of the median is according to the questionnaire, most usually 'easy' to suggest values

for; *Related Reader* positioned on the 'simple' side of the median is according to the

questionnaire, most usually 'difficult' to suggest values for. We reasoned that this

can partly be explained by the order in which the annotation schema is presented to

the annotator: early attribute presentation tends to be complex because the annotator

is consulting the text of a story that they have only read once; middle attribute

presentations tend to be simple because the story is by now familiar; late attribute

presentation tends to be complex because the annotator has by now forgotten what the attribute is;

Because the task involves the annotator physically interacting with user interface parts that represent choices they may make, diagrammatic representation of those choices has been possible. We are interested in both individual and collective annotation behaviour patterns and the diagrams show this. The first annotation pattern diagram shows direct agreement with the editor regarding attribute values. The second shows the use of menus, whether they are viewed, whether term definitions are sought and whether they are selected from. The third diagram shows annotators' use of free text. What the second and third diagrams do not show is the level of indirect agreement, i.e. where the annotator does not tick the editor's suggestion but enters it by some other means. Neither do any of the diagrams show partial agreement where the annotator's choice is only slightly different form the editor's. The reason such behaviours are not shown is that we are here bordering on qualitative data: we want to know why. Chapter 9 provides answers to such questions but it does this in a grounded way (Glaser and Strauss, 1967), by allowing the data to speak for itself and to suggest categories rather than to populate predefined ones.

Chapter 9

Task behaviours

9.1 - The recordings categories

This chapter, which looks at the incident categories has four main sections, three of which concentrate on a particular angle of analysis: story annotation (9.1.1), story interaction (9.1.2) and those incidents that are not specific either to the stories or to their annotation but which concern the task more broadly (9.1.3). The chapter ends with discussion in Section 9.2.

The incident categories are qualitative, derived solely from repeated viewings of the recordings. Their potential significance can be better appreciated by viewing the incidents directly and so for all category members, the relevant clip is given in Part B of the associated technical report.

For many of the incidents a quote from the individual is given. In fact, there are only two reasons for not doing this: the participant says nothing or at least nothing relevant which is indicated by *""* and *"~"* respectively, or they repeat more or less what other participants in that category have said, and this is indicated by *"^".* In all such cases, the abstracted quote provides the category label. An incident from each category is provided here as an example. Also provided, where appropriate, is additional discussion which considers how this qualitative data relates to the quantitative data reported in chapters 7 and 8. The grounded theory approach (Glaser and Strauss, 1967) has meant that categories once created must constantly evolve in order to accommodate new incidents. The importance of the quote is that it contributes to the meaning of the category and thereby also provides a check on whether that meaning still applies or

whether a new category is needed. Contextual variables that may be influential - story, attribute and task phase - are included as part of the incident.
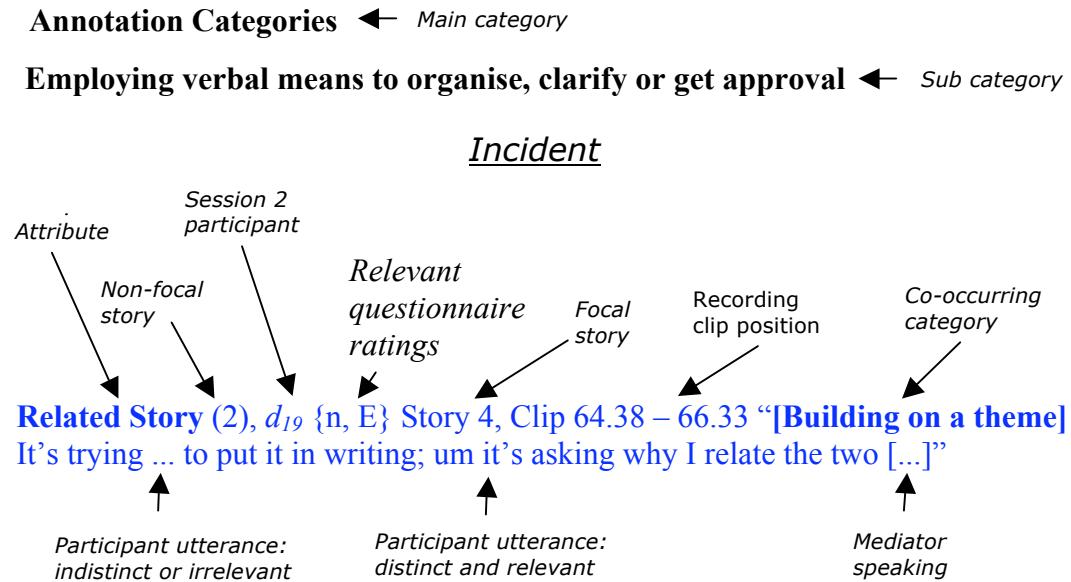
Because an incident often encompasses a complex of behaviours, a given clip though recorded under one category may refer to other categories. That is, during a given clip, an annotator might *do* something for category *A* inclusion and *say* something for both category *B* and category *C* inclusion. Co-occurrence however, is seldom symmetrical. The more usual arrangement is entailment or containment involving a base incident and a co-occurring incident, where the base is a member of the category under consideration and the co-occurrence is a member of the other category. Not every co-occurrence is shown; it depends on how that showing impacts on the relevant base incident. There are two main reasons for not showing co-occurrence: it is made obvious by the base incident or it detracts from the meaning of the base incident. The main detractors are marginality and multiplicity. On the other hand, potential detractors can sometimes lend context to the base incident and so there are no absolute rules for deciding how much or how little to show. Showing consists of substituting the participant's quote partial quote or silence within the base incident with the category label of the co-occurring incident. Otherwise, and where possible, the participant's quote is sympathetically divided amongst the categories concerned.

Except for categories that for one reason or another are kept together, they are grouped accordingly to whether the significance of the incident had mainly to do with a particular annotation (A), a particular story (S) or the task generally (T). In the case of annotation categories only, and where relevant, incidents will be tagged with participants' questionnaire responses. Lower case initials refer to the attribute under

consideration at the time; whether that is, it was regarded as generally, **e**asy, **d**ifficult or **n**either to suggest values for. Depending on the category, upper case initials will refer to ease or difficulty of the task part, usefulness of menus or degree of restriction felt. The categories are organised by attribute, task part, story or participant depending on their respective relevance. For incidents to do with relating stories, the non-focal stories are shown in brackets. Regular and blue font will indicate whether a participant took part in the first (knowledge media researcher) session or the second (health care professional) session. Since the ratio of medical to non-medical participants is 1:2, it may be expected that the category populations will be similarly constituted. Where therefore, they are not, it reveals difference between the two groups in the way they approached and handled the various aspects of the task. Within each quote, ellipses indicate those parts of the participant's speech not shown and where the ellipses are bracketed it indicates that the mediator too is speaking. For reasons of economy, what the mediator actually says is not shown although it can sometimes be deduced from the category label. For reasons of clarity, such indicators of extra speech have not been included on the immediate surround of co-occurring category labels. Figure 9.1 below provides an example.

Figure 9.1

Guide to the recordings categories and incidents

Annotation Categories ← *Main category*

Employing verbal means to organise, clarify or get approval ← *Sub category*

Incident

Attribute

Session 2 participant

Non-focal story

Relevant questionnaire ratings

Focal story

Recording clip position

Co-occurring category

Related Story (2), d_{19} {n, E} Story 4, Clip 64.38 – 66.33 "**[Building on a theme]** It's trying ... to put it in writing; um it's asking why I relate the two [...]"

Participant utterance: indistinct or irrelevant

Participant utterance: distinct and relevant

Mediator speaking

9.1.1 - Annotation categories (A)

For the annotation categories, incidents are usually organised by attribute and within that, by participant or story, although there are occasional deviations from this pattern. This way we should be able to see whether a category is provoked by certain attributes and participants' encountering of them, and whether the incident has anything to do with the story itself or its order in the task. The annotation incidents are given in Part B of the Appendices as indicated above. An example from each category is provided here; each incident contains the participant's relevant questionnaire ratings, the clip and the quote. For most annotation categories we provide tables and figures which link the qualitative data with the questionnaire data and where appropriate, with our own story and attribute complexity scales in Chapter 8 (Figures 8.1 and 8.2). Before going on to discuss each of the annotation categories, the frequencies of those incidents are

collected together in Table 9.1 which shows also the annotation category structure. Each branch of the structure terminates in a leaf node which gives the number of incidents for that category. These quantities are also displayed alongside the category names throughout the discussion that follows.

Table 9.1

Frequency of annotation incident within category structure

| <=5 | | <=10 | <=20 | <=30 | <=40 | <=50 | | <=100 | | >100 |

(A1) The formulation of free-input values

  (A1.1) Difficulty

    (A1.1.1) Taking a long pause before or during typing the value (> 20 seconds) — 19

    (A1.1.2) Abandoning completely a free input value — 2

    (A1.1.3) Finding the word or phrase e.g. "What's the word I'm looking for?" — 26

    (A1.1.4) Deleting and retyping the whole or much of the value — 11

    (A1.1.5) Employing verbal means to organise, clarify or get approval — 46

    (A1.1.6) Deferring input — 5
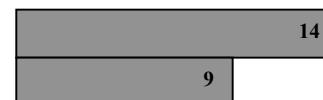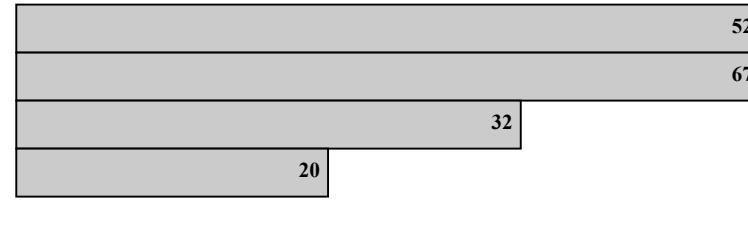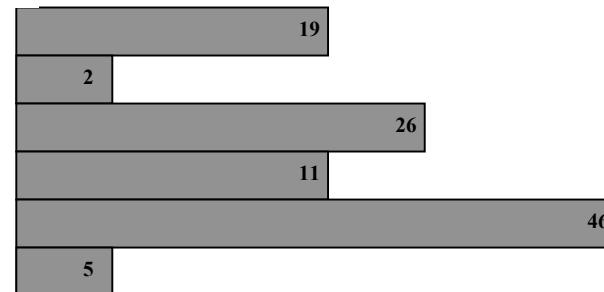
  (A1.2) Ease

    (A1.2.1) Immediacy and fluency

    (A1.2.1.1) Revisiting the story prior to input — 52

    (A1.2.1.2) Not evidently revisiting the story prior to input — 67

    (A1.2.2) Cascading suggestions — 32

    (A1.2.3) Building on a theme — 20

(A2) Change of mind regarding an attribute value (having moved away from, then returns)

  (A2.1) Phase 1 — 14

  (A2.2) Phase 4 changing or considering changing Phase 1 — 9

<=5		<=10	<=20	<=30	<=40	<=50		<=100		>100

(A3) "Can I…?"

  (A3.1) "Can I have more than one [attribute value]?"
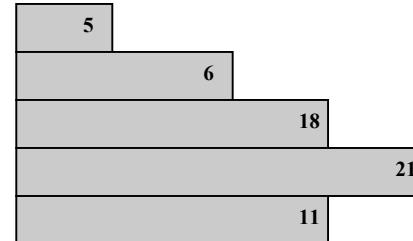
    (A3.1.1) "Can I have more than one [attribute value] generally?" — 5

    (A3.1.2) "Can I type more than one?" — 6

    (A3.1.3) "Can I also [select/tick/type]?" — 18

  (A3.2) Can I say what I want? I.e. how free is free input allowed to be? — 21

  (A3.3) Can I do nothing? — 11

(A4) "What does it mean?"

  (A4.1) "What does [task instruction term or expression] mean?"

    (A4.1.1) Phase 1 term or expression — 23

    (A4.1.2) Phase 2 term or expression — 2

    (A4.1.3) Phase 3 term or expression — 15

  (A4.2) "What does [attribute label] mean?" — 14

  (A4.3) "What does [term or expression in the story] mean?" — 57

  (A4.4) "What does [story title term] mean? — 5

  (A4.5) "What does [editor's / previous reader's suggested attribute value] mean?" — 33

  (A4.6) "What does [domain menu term] mean?" — 12

  (A4.7) "What does [narratological menu term] mean?" — 14

  (A4.8) "What does [menu] mean?" — 6

(A5) Evidently considering two or more (non-point) attributes simultaneously — 34

<=5	<=10	<=20	<=30	<=40	<=50	<=100	>100
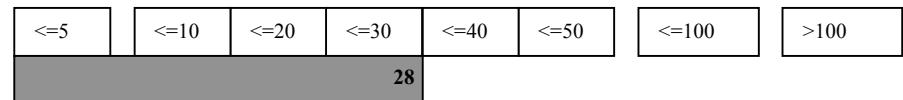
(A6) "For me it's X" or similar i.e. the participant announces a personal perspective — 28

(A7) The editor's choice of attribute value

  (A7.1) Strong agreement with — 30

  (A7.2) Strong disagreement with — 9

  (A7.3) Commenting on a value weakly agreed or disagreed with — 80

  (A7.4) Customising the editor's suggestion to achieve the preferred interpretation — 4

  (A7.5) Indicating that they wouldn't independently suggest a value now agreed with — 5

  (A7.6) The only thing I can do is word it differently; the meaning will be the same — 4

  (A7.7) Rearranging the editor's suggested character roles — 18

(A8) Remarking on the unfamiliarity of the domain — 8

(A9) Concern with truth or semantic correctness

  (A9.1) Truth of a story text — 2

  (A9.2) Correctness of an attribute value — 10

  (A9.3) Does it make sense? — 8

  (A9.4) Consulting the story text in order to formulate a closely corresponding suggestion — 5
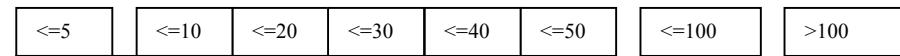
(A10) Concern with spelling or grammar

  (A10.1) General concern — 3

  (A10.2) Asks e.g. 'Is that right?' — 16

  (A10.3) States e.g. 'Don't know if that's right' — 7

<=5	<=10	<=20	<=30	<=40	<=50	<=100	>100

(A11) Creative and unusual input value types — 12

(A12) Offering an explanation for a suggestion, either verbally or textually — 80

(A13) Referring to the Authorial context

    (A13.1) Time of writing — 1

    (A13.2) Place of writing — 9

    (A13.3) Author's identity — 22

(A14) Mediation

    (A14.1) Handling unconventional input types — 13

    (A14.2) Handling reluctance to make a suggestion — 6

    (A14.3) Directing attention to an attribute — 23

(A15) Regarding the attributes hierarchically — 7

(A16) Characters

    (A16.1) Indecision regarding the assignment of character roles — 8
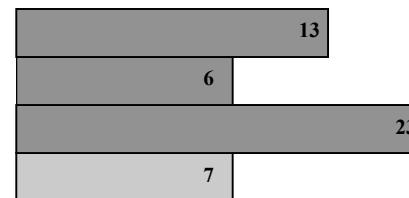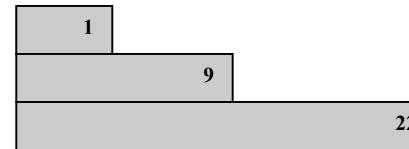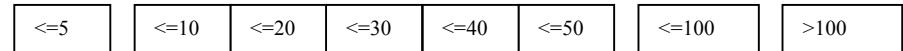
    (A16.2) Character roles

        (A16.2.1) Moving beyond the text to suggest character roles — 17

        (A16.2.2) Establishing one view in order to suggest an opposing one — 2

        (A16.2.3) Drawing on knowledge of the story's theme to suggest character roles — 4

        (A16.2.4) Suggesting potential alternative characters for a role — 7

<=5	<=10	<=20	<=30	<=40	<=50	<=100	>100
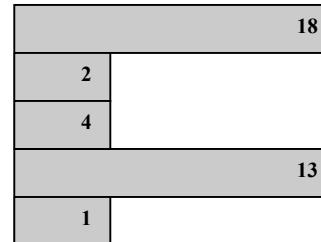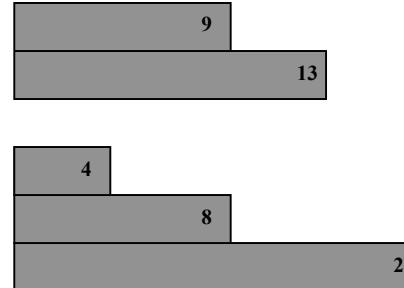
(A17) Narrator

(A17.1) Not treating style of narration as being a mutually exclusive choice

18

(A17.2) Suggesting potential alternative narrators

2

(A17.3) Commenting on the differentiation of Narrator and style of narration

4

(A17.4) Commenting on style of narration

13

(A17.5) Placing the narrator inside the story

1
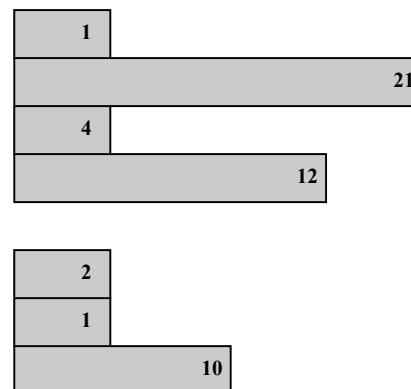
(A18) Audience scope

(A18.1) General and non-medical audiences

(A18.1.1) Remarking on or otherwise suggesting the general interest nature of the

9

(A18.1.2) Identifying non-'medical professional' potential audiences

13
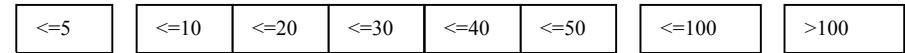
(A18.2) The influence of Narrative style on selected Audience kinds

(A18.2.1) Narrative style and the identification of an individual person as audience

4

(A18.2.2) Narrative style and the identification of an institutional body as audience

8

(A18.3) Recognising potential Audiences in their Character suggestions

25

(A19) Menus

(A19.1) Domain menus

(A19.1.1) Remarking that the domain menus are the same

1

(A19.1.2) Remarking on the specific nature of the domain menus

21

(A19.1.3) The term is applicable but its definition (general practice context) is not

4

(A19.1.4) General remark

12
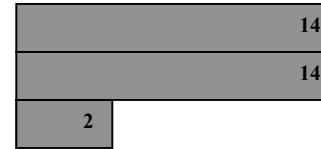
(A19.2) Narratological menus

(A19.2.1) The term is applicable but its definition is not

2

(A19.2.2) The definition is applicable but the term itself is not

1

(A19.2.3) General remark

10

<=5	<=10	<=20	<=30	<=40	<=50	<=100	>100

(A20) Nearest to hand suggestions

  (A20.1) Selecting the editor's suggestion from a menu rather than agreeing directly — 14
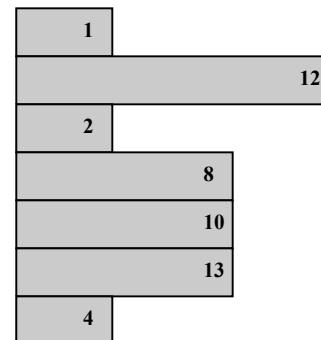
  (A20.2) Entering as free text a value that is semantically equivalent to a menu item, editor or previous reader suggestion — 14

  (A20.3) Remarking on semantic equivalence of terms — 2

(A21) Story relations

  (A21.1) Identification of story relationships

    (A21.1.1) Identification of story relationship kinds — 1

    (A21.1.2) Identification of multi-way story relationships — 12

    (A21.1.3) Identification of genre relationships — 2

    (A21.1.4) Identification of contrasting relationships — 8
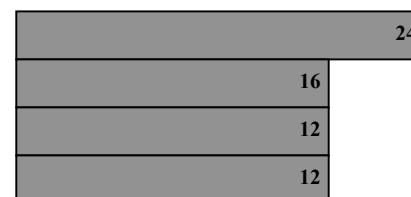
    (A21.1.5) Identification of loose/weak/broad relationships — 10

  (A21.2) Responses when viewing the two stories related by subject (7 and 8) — 13

  (A21.3) Weaving their own story as a means of relating two stories — 4

(A22) Remarking on Related Reader

  (A22.1) Remarking that a particular story *does* relate to them as reader — 24
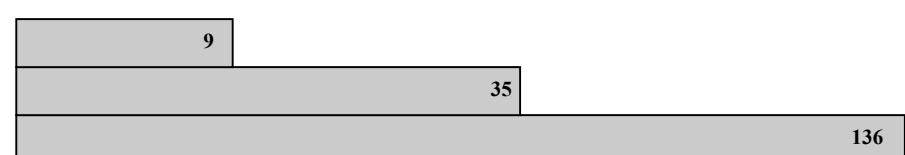
  (A22.2) Remarking that a particular story does not relate to them as reader — 16

  (A22.3) Remarking that a particular story might relate to them as reader — 12

  (A22.4) Other behaviours indicating reader relatedness to any story — 12

(A23) The identification of story-story relations

  (A23.1) Expressions on the absence of story-story relations — 9

    (A23.1.1) The unrelated focal story — 35

    (A23.1.2) The unrelated non-focal story — 136

  (A23.2) The presence of story-story relations

(A1) The formulation of free-input values

One of the first categories to emerge from the data is the relative ease and difficulty that participants appear to experience during their formulation of free-text values. As with most annotation categories, the variety of ways of expressing both ease and difficulty increases as more recordings are viewed and as more repeated viewings are made. Throughout this category, the relevant questionnaire ratings are for ease and difficulty concerning the current task part (QE, QD, E, D, VE or VD), and the attribute (e, d or n).

(A1.1) Difficulty

(A1.1.1) Taking a long pause before or during typing the value (> 20 seconds)[19]

A long pause isn't necessarily an indication of difficulty and so entries here record only the more obvious cases, that is, where the participant's attention is clearly on the input field − they have positioned the cursor in readiness for input but do not begin to type until after twenty seconds have elapsed.

> **Related Story** (9), b_{18} {e, QE} Story 2, Clip 54.50 – 56.34 *"I'm trying to think of the right words, you know you think of something but you can't actually put it into words [...] I'm trying to think of what I'm trying to say - umm"*

(A1.1.2) Abandoning completely a free input value[2]

It is extremely rare, i.e. only two incidents, for participants to abandon completely a free input suggestion. To qualify for inclusion in this category requires the participant to type something, to delete it completely and to move away. If the participant does not type anything, their intention may be purely exploratory.

> **Related Reader**, c_6 {n, QD} Story 7, Clip 64.10 – 64.32 *"No"*

(A1.1.3) Finding the word or phrase e.g. "What's the word I'm looking for?"[26]

Incidents recorded here are where the participant has a suggestion but makes known that

they are experiencing difficulty in phrasing it.

> **Main Point**, c_{22} {e, E} Story 7, Clip 22.44 – 23.14 *"What do I want to say. Um, sort of getting rid of the stuff that shouldn't be there at all; it's not only the high end of things: to be seen quickly, but the low end of things ... Prioritising! ..."*

(A1.1.4) Deleting and retyping the whole or much of the value[11]

Many of the incidents recorded here are silent expressions of **Finding the word or**

phrase. The difference between this subcategory and **Building on a theme** (where in

an expression of **Ease**, an established core suggestion is gradually improved upon) is

that here the change is more fundamental.

> **Main Point**, a_{20} {e, QD} Story 1, Clip 21.08 – 23.52 *"...what am I trying to say? ... Oh right, I have to put it in a sentence ... I can't put it in a sentence* **[Employing verbal means to organise, clarify or get approval]***"*

(A1.1.5) Employing verbal means to organise, clarify or get approval[46]

The translation from concept to object is rarely obvious, immediate or exact, but to

qualify for category membership here, means the prospect of abandonment is long

passed. Already in possession of the word or phrase, they are trying it this way and that:

'Does it fit? 'Does it look okay?' Occasionally, incidents in this category will be

closely followed by expressions of **Ease**. This is just because judgement of the latter

begins only after the cursor has been positioned for input. What it implies in this case is

that input is made easier by first articulating what they want to say.

> **Main Point**, c_2 {e, QE} Story 11, Clip 23.50 – 24.06 *"***[Customising the editor's suggestion to achieve the preferred interpretation]*** Now what do I want to say? What I want to say is something like 'They record the actual cause of death rather than the reason the person ended up dying in that way'..."*

(A1.1.6) Deferring input₅

Only one participant explicitly defers input; the attribute concerned is *Related Story.* Although the participant is quick to identify relationships, they don't provide explanations: *"What shall I say?",* instead they form a plan: *"Maybe if I relate some stories to the other stories and then come back"* (task category **Request to suspend relating the current story**); via 'Save later' on all three focal stories, the participant first navigates and relates without explanation. Then they return and enquire: *"Is it necessary, or ...?"* (annotation category **Handling reluctance to make a suggestion**) before finally providing explanations.

> **Related Story** (5), a_4 {e, D} Story 1, Clip 59.45 – 60.08 *"***[The presence of story-story relations]** *What shall I say?"*

(A1.1) Data analysis

Figure 9.3 below shows proportional expressions of difficulty within attribute and task part, taking into account the questionnaire data. For example, according to the questionnaire, 15 participants rate Main Point 'easy' but when attending to this attribute during annotation, there are 9 captured expressions of difficulty from participants in that 'easy' subset. For each attribute, therefore, we take the number of captured expressions of difficulty within attribute rating: *easy*, *difficult* and *neither* and divide it by the total number of participants who gave that rating in the questionnaire, rounding the result to one decimal place. Because the resulting value is too small to give a good visual representation, each sphere on this left side of the diagram represents the value 0.1.

Similarly for task part ratings, we take the number of captured expressions of difficulty within each of the six subsets: *Very Easy*, *Easy*, *Quite Easy*, *Quite Difficult*, *Difficult*

and *Very Difficult* and divide it by the total number of participants who gave that rating in the questionnaire, rounding the result to one decimal place. For example, there are 2 captured expressions of difficulty from the only participant in the study who rated *Indexing* 'Very Easy'. If the resulting value is too small to give a good visual representation, it will be proportionately increased. Each cube in Figure 9.3 represents the value 0.5 but it is the relative number of cubes and spheres not the actual number that is important and for other annotation categories the values each represents will be chosen accordingly and not necessarily stated. If after rounding a value remains less than either a single sphere or single cube represents, it is regarded as zero.

To simplify matters we do not factor in non occurrence of expressions of difficulty for which there are questionnaire ratings, although the absolute numbers of participants giving each rating is shown in subscript alongside attribute and task part rating. For example, there are no captured expressions of difficulty from any of the three participants (subscript 3) who rate Other Point as 'difficult'. Neither did the only participant (subscript 1) that judged *Relating* to be 'Very Easy' express difficulty during this part of the task.

Because throughout the remainder of this chapter, there will be similar visualisations of the recordings data to that provided by Figure 9.3, we provide a guide to the interpretation of these figures below.
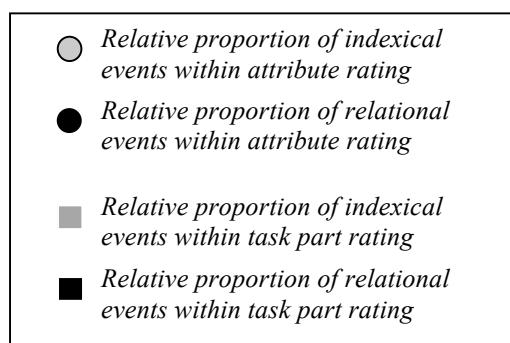
Figure 9.2

Guide to Figure 9.3 and similar figures
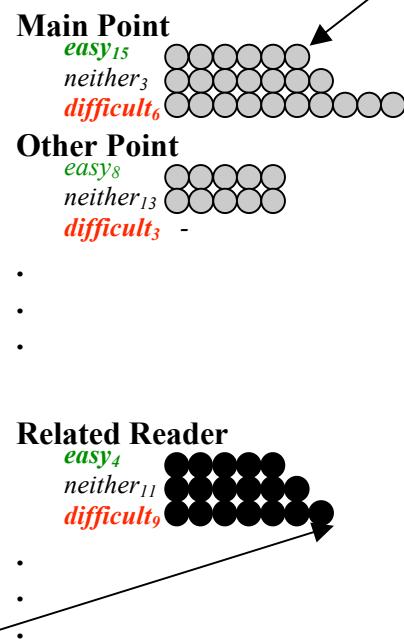
In answer to: '***Easiest suggestions generally, were for*** (choose one or more)', 15 participants included **Main Point**, 8 included **Other Point** … and 4 included **Related Reader** in their questionnaire choices.

In answer to: '***Hardest suggestions generally, were for*** (choose one or more)', 6 participants included **Main Point**, 3 included **Other Point** ... and 9 included **Related Reader** in their questionnaire choices.

In answer to: '***Indexing the stories was generally*** (choose one)', 1 participant chose **'Very Easy'**.

Relative number of recording clips capturing evidence of annotation difficulty from those participants, who on the questionnaire rated **Main Point** *'easy'* to annotate

Relative number of recording clips capturing evidence of annotation difficulty from those participants, who on the questionnaire rated the **Indexing** task part *'Very Easy'*

○	*Relative proportion of indexical events within attribute rating*
●	*Relative proportion of relational events within attribute rating*
■ (grey)	*Relative proportion of indexical events within task part rating*
■	*Relative proportion of relational events within task part rating*

Main Point
easy$_{15}$
neither$_3$
difficult$_6$

Other Point
easy$_8$
neither$_{13}$
difficult$_3$ -

·
·
·

Related Reader
easy$_4$
neither$_{11}$
difficult$_9$

·
·
·

Indexing   ***Relating***

Very Easy$_1$ ■■■■   - *Very Easy$_1$*

Easy$_8$ ■■■■■ ■■■■ *Easy$_7$*

·
·
·

Relative number of recording clips capturing evidence of annotation difficulty from those participants, who on the questionnaire rated **Related Reader** *'difficult'* to annotate

Relative number of recording clips capturing evidence of annotation difficulty from those participants, who on the questionnaire rated the **Relating** task part *'Easy'*

379

For expressions of difficulty we would expect a greater number of spheres attaching to the 'difficult' ratings on the left of the diagram. It turns out that the most highly represented rating overall is 'easy'. Expressions of difficulty by participants who rate an attribute as 'neither' or 'difficult' are identical in number overall. Attributes that provoke most expressions of difficulty are Related Story and Main Point.

On the right of the diagram we would expect a greater number of cubes attaching to relative difficulty task part ratings. In fact the number of cubes representing relative ease is almost identical to the number of cubes representing relative difficulty. The task part that gives rise to most expressions of difficulty is Relating.

Figure 9.3

Difficulty – Attribute and Task Part Questionnaire Rating
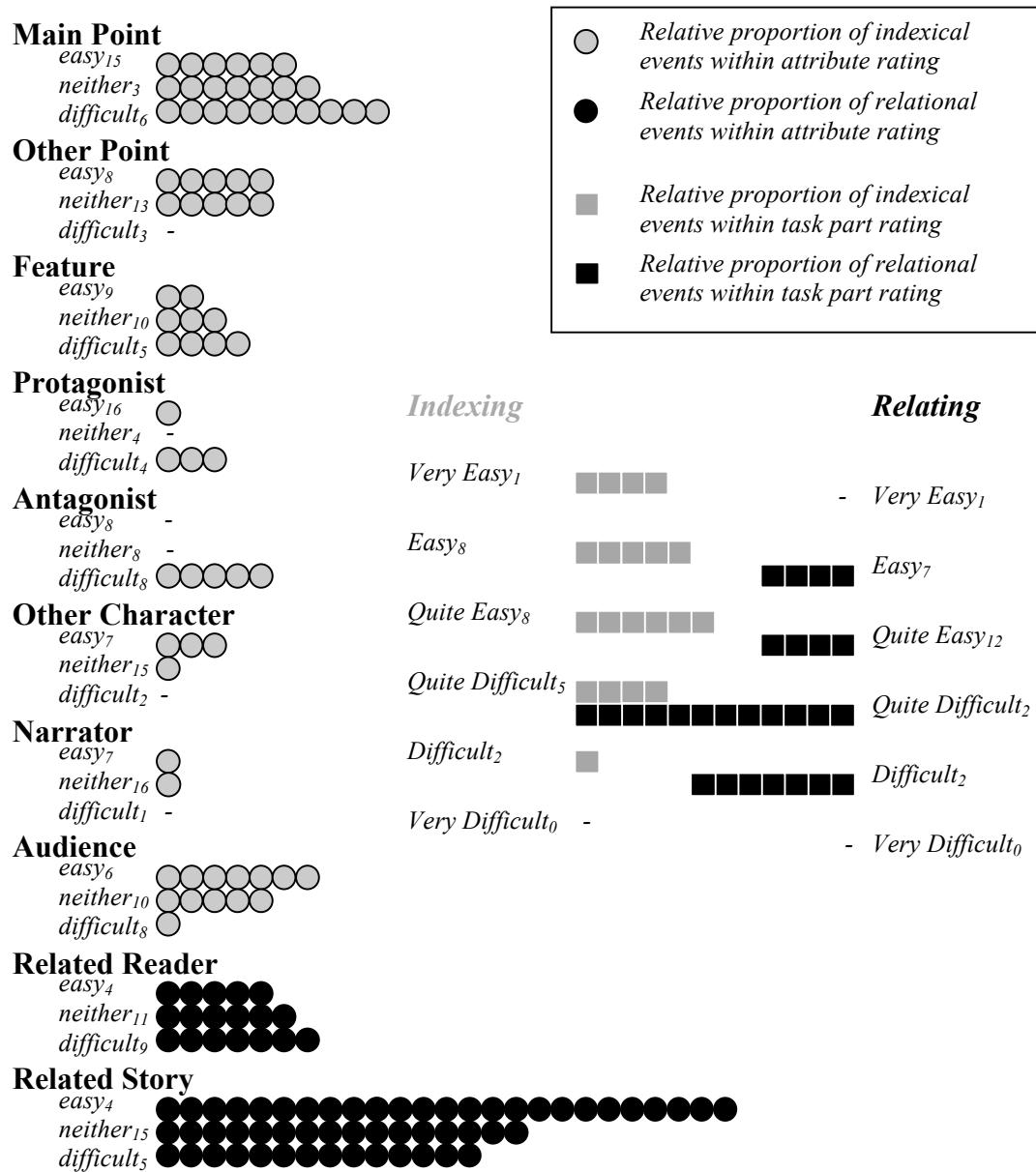
Figure 9.3 below provides a guide to interpreting some of the tables appearing from this point forward in the chapter. The first of these, Table 9.2, shows that some participants express more annotation difficulty than others and some story sets provoke more expressions of annotation difficulty than others. At the extremes, participant c_{21} has greatest presence

and participants a_{17} and b_{24} are not present at all. Story set *c* provokes most expressions of

difficulty and story set b least.

Figure 9.4

Guide to Table 9.2 and similar tables

Story Set	**_a_**						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	**8**	2	5	2	**0**	11	5	1	2	5	1	0	3	12	3	5	15	8	1	12	1	1	3	3
Incidents per set	**28**						14						46						21					
Total Incidents	**109**																							

Within this (unspecified)
category of incident 109 are
raised in total. Participants
assigned to Story set *a*
contribute 28 of the total.
Within those 28, 8 are raised
by Participant 4. The only
participant assigned to Story
set *a* not contributing to this
category of incident is
Participant 17.

Table 9.2

Difficulty – Story set membership

Story Set	a						b						C						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	8	2	5	2	0	11	5	1	2	5	1	0	3	12	3	5	15	8	1	12	1	1	3	3
Incidents per set	28						14						46						21					
Total Incidents	109																							

How do participant attributes ratings for this category compare with our own attribute ranking based on the number of referrals to the story text? Quite well, Table 9.3 suggests. The attributes we have placed at the relatively complex end provoke more expressions of difficulty than those we placed around the median which in turn provoke more expressions of difficulty than those we placed at the relatively simple end.

Table 9.3

Difficulty – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	7	41	10	**2**	**3**	**17**	**15**	4	3	7
Totals	58			**37**						14
	109									

(A1.2) Ease

(A1.2.1) Immediacy and fluency

Immediacy has less to do with how quickly a participant decides to make a text box entry and more to do with how decisively and rapidly they make it, once the cursor has been positioned for input. It is quite possible therefore, for an immediate input to also be an instance of **task part consolidation**. Fluency requires a sense-making phrase, i.e. broadly consistent with the attribute label, of three or more words. Judgment can be difficult since it isn't always known how long the participant has spent formulating a suggestion beforehand unless it is also an instance of **cascading suggestions** where one input is immediately followed by another. However, an indication of relative spontaneity is whether the text is revisited beforehand, and so this category is split.

The only expression of **Difficulty** an incident in this category may follow is **Employing verbal means to organise, clarify or get approval**. Even then, judgement is relative to the individual's general annotation behaviour; what for one would qualify, might not for another. For example, an apparently hesitant input may be due to a participant being unfamiliar with the keyboard layout. Some attributes are under-represented in this category. These are the attributes that normally suggest single-word values.

The most frequently occurring attribute in this category is *Related Story*. There are a number of possible reasons for this. Firstly, the purpose of the preceding Reading phase is to prepare for this phase. Secondly, they can relate the same story as many as eleven times if they wish. Thirdly, there are no competitor editor suggestions and neither are there any constraints on input: it can be anything from a single word to several sentences. Finally, whereas there is an implicit pressure when indexing a single point structured story, to keep suggestions consistent with the author's imputed motive, now when considering two stories, that pressure is released and they can say just what they like.

Another attribute for which participants suggest values with relative ease is *Related Reader*. What they say here has even less to do with any imputed motive, for once readers understand that this is not about the generic reader but them personally, the suggestions without exception are about how they are able to comprehend the story in terms of their own experiences.

(A1.2.1.1) Revisiting the story prior to input$_{52}$

Even given that the input is judged immediate and fluent, it may still involve deliberation.

An indicator of this is where the participant, after having read the story through initially,

more than glances back at it, or appears to, immediately prior to input. These referrals are

included in the clips.

> **Related Story** (9), b_{14} {n, QE} Story 2, Clip 44.50 – 45.38 *"[...] let's see what happens ... Okay, I was wondering if it'd give me something like 'Say why'"*

(A1.2.1.2) Not evidently revisiting the story prior to input$_{67}$

The participant demonstrates spontaneity if their immediate and fluent input is not preceded

by anything more than a glance at the text in the context of the attribute under consideration.

However, signals are often absent and so the category also collects those incidents where it

appears that the annotator has not made a return to the text, or either of the texts in the case

of *Related Story*.

> **Other Point**, c_{16} {n, QD} Story 7, Clip 32.35 – 32.55 *"That's probably worse then 'bypassing' [laughing]"*

(A1.2.2) Cascading suggestions$_{32}$

The input of one suggestion may trigger a cascade of further potential suggestions on the

same dimension. This category contains those incidents where a new suggestion begins to

take shape whilst the participant is typing or providing an explanation of what they are

typing or thinking. However, they may not go on to make the suggestion as a distinct

suggestion without the mediator encouraging them to do so. They may try to incorporate it,

usually by tagging or trying to tag it on to the current suggestion or they may just offer it

verbally. An interesting case is where the current suggestion is difficult but its eventual

articulation provides a triggering effect: what was difficult is made easy. It can therefore be regarded as a strategy, albeit unconscious, for generating suggestions.

> **Feature**, d_3 {n, E} Story 4, Clip 22.17 – 22.54 *" ... 'money' I think would be another one ... as a marker of 'social justice' ... 'religion' I think would be another"*

(A1.2.3) Building on a theme₂₀

It is of course usual for categories to overlap and sometimes very closely. However, when considering the singular incident, it is a fine line that separates the category **Cascading suggestions** from a mutually exclusive category and strategy whereby the participant makes an initial suggestion and gradually improves it by adding surrounding text. Judgement as to which is appropriate depends on whether meaning is in anyway compromised when the parts of a suggestion are regarded separately.

Another apparently similar but again, mutually exclusive category is the expression of **Difficulty** which involves the annotator in **Deleting and retyping the whole or much of the value** because although **Building on a theme** may involve deleting text, the essence of the suggestion, which is reproduced here, remains.

> **Main Point**, b_{14} {n, QE} Story 10, Clip 29.51 – 31.26 *"***[Change of mind regarding an attribute value (having moved away from, then returns)]*** [building on 'before consulting the GP']"*
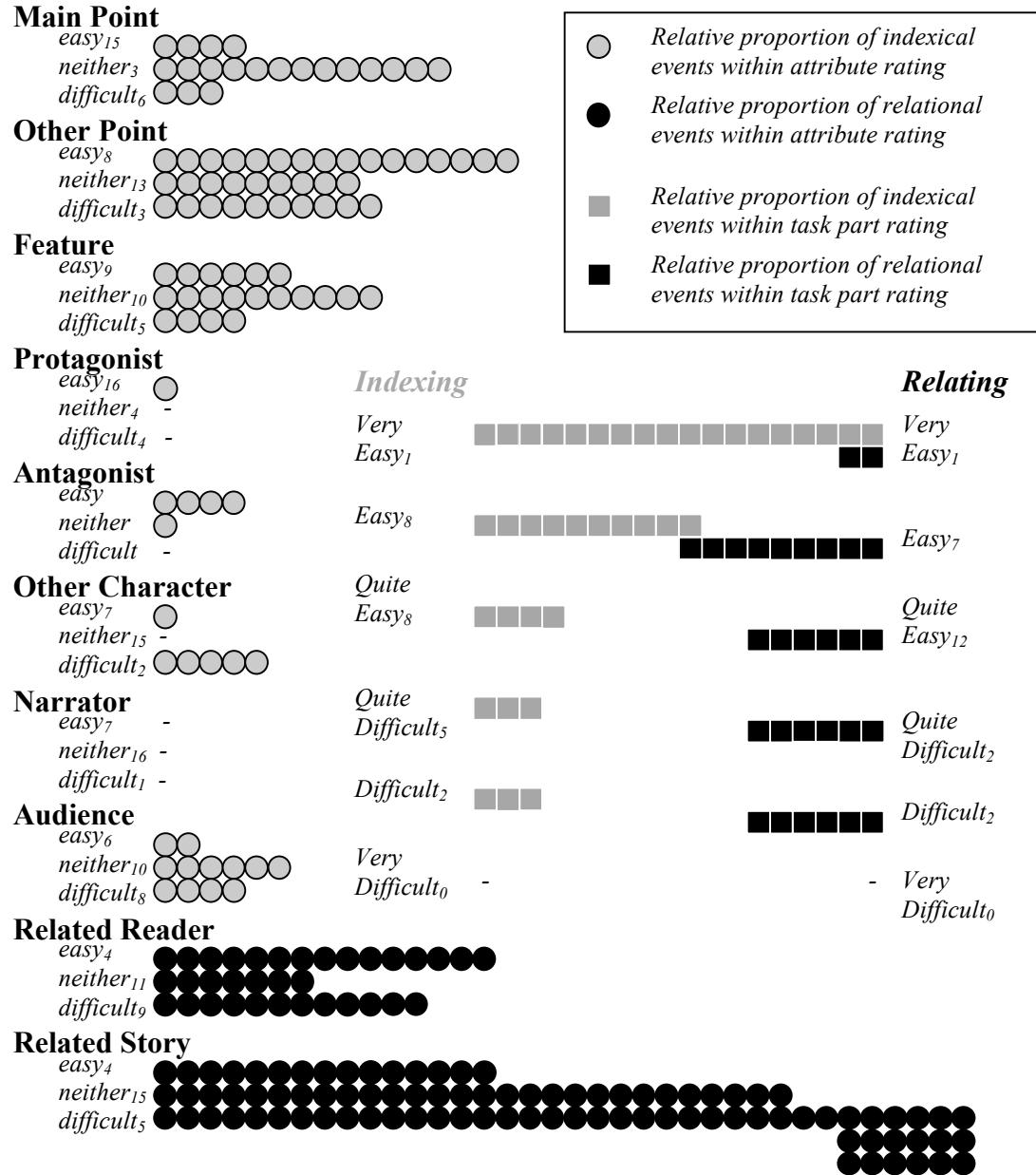
(A1.2) Data analysis

Figure 9.5 below has exactly the same format as Figure 9.3 above. Each sphere on the attribute side of the diagram represents the value 0.1 and each cube on the task part side of the diagram represents the value 0.5. This time we would expect that most expressions of annotation ease would be made for those attributes participants rated as 'easy'. Instead we

have the inverse of expectation where the greatest number of expressions of ease correspond to attributes judged 'difficult' and the least expressions of ease correspond to attributes judged 'easy' to annotate. Notice in particular the pile of spheres attaching to the 'difficult' to annotate subset of Related Story. Whereas before in expressions of difficulty, participants made a similar number of judgements regarding relative ease and difficulty of the task part they were in at the time; here however, almost three times as many participants expressing ease go on to rate the task part they were in at the time as relatively easy and this is what we would expect.

Figure 9.5

Ease – Attribute and Task Part Questionnaire Rating

Main Point
    $easy_{15}$
    $neither_3$
    $difficult_6$

Other Point
    $easy_8$
    $neither_{13}$
    $difficult_3$

Feature
    $easy_9$
    $neither_{10}$
    $difficult_5$

Protagonist
    $easy_{16}$
    $neither_4$ -
    $difficult_4$ -

Antagonist
    easy
    neither
    difficult -

Other Character
    $easy_7$
    $neither_{15}$ -
    $difficult_2$

Narrator
    $easy_7$ -
    $neither_{16}$ -
    $difficult_1$ -

Audience
    $easy_6$
    $neither_{10}$
    $difficult_8$

Related Reader
    $easy_4$
    $neither_{11}$
    $difficult_9$

Related Story
    $easy_4$
    $neither_{15}$
    $difficult_5$

Legend:
- ○ *Relative proportion of indexical events within attribute rating*
- ● *Relative proportion of relational events within attribute rating*
- ▪ (grey square) *Relative proportion of indexical events within task part rating*
- ▪ (black square) *Relative proportion of relational events within task part rating*

Indexing   *Relating*

Very Easy$_1$ *Very Easy$_1$*

Easy$_8$ *Easy$_7$*

Quite Easy$_8$ *Quite Easy$_{12}$*

Quite Difficult$_5$ *Quite Difficult$_2$*

Difficult$_2$ *Difficult$_2$*

Very Difficult$_0$ -   - *Very Difficult$_0$*

As for annotation difficulty, there is again sizable difference in the number of contributions participants make to this category. Participant c_{16} has most presence and participant a_{13} is entirely absent. The story set that provokes most expressions of ease is *b* which is what we would expect since it also provoked least expressions of annotation difficulty. Here story set

a provokes least expressions of ease which is also not far short of expectation since it was the second most highly represented story set in terms of annotation difficulty.

Table 9.4

Ease – Story set membership

Story Set	A						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	1	2	13	0	4	9	15	3	13	8	5	10	6	4	4	19	7	3	8	14	3	5	6	9
Incidents per set	29						54						43						45					
Total Incidents	171																							

This time participants' ratings of attributes compare less well with our own derived ranking. In fact, the opposite of expectation is found. The attributes we have placed towards the simple end provoke least expressions of ease and those we placed towards the complex end provoke most.

Table 9.5

Ease – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	17	72	28	**1**	**2**	**12**	**25**	4	0	10
Totals	117			**40**						14
	171									

(A2) Change of mind regarding an attribute value (having moved away from, then returns)

An incident in this category will involve the annotator independently, and after an interval, returning to an attribute and making changes to the suggestions made there.

Again, the relevant questionnaire ratings are for the ease and difficulty of the task part and the attribute concerned. There are two subcategories, depending on whether the participant's change of mind occurs during Phase 1 or Phase 4. Notice that there is an absence of mind changing during Phase 3. Due to their number, instances of adding suggestions after an interval are not included but these will often qualify under **Task part consolidation**.

(A2.1) Phase 1_{14}

> **Other Point**, c_2 {n, QE} Story 11, Clip 25.09 – 26.50 *"So I've demoted it; I might actually remove it, okay because I've kind of replaced it with something that says the same thing a bit more um carefully* **[Finding the word or phrase]***"*

(A2.2) Phase 4 changing or considering changing Phase 1_9

Even given that just under half of participants choose to enter Phase 4, the number of changes to existing suggestions is similar to that of Phase 1.

> **Other Point**, a_{12} {d, E} Story 9, Clip 82.18 – 82.59 *"The thing is, now this one [Other Point] feels like a rewording of this one [Main Point] [...] Yeah, that's the joys of classification; if you come back twenty minutes later you 'Oh no I shouldn't have done it that way, I should have done it [...]"*
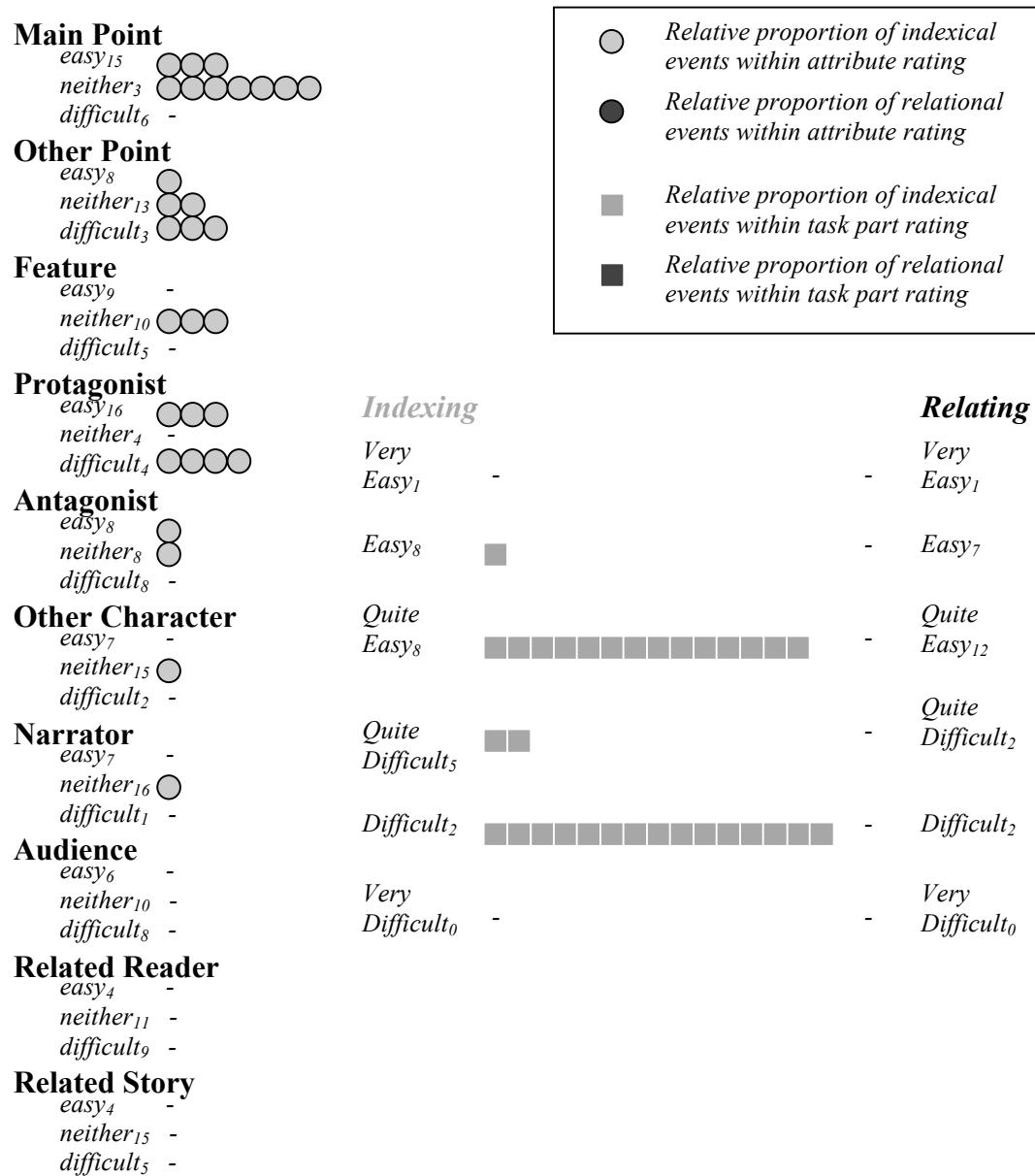
(A2) Data analysis

Compared to the ease and difficulty diagrams above, the sparseness of Figure 9.6 allows that each cube on the right of the diagram simply represents the value 0.1. That is, within each task part rating we take the number of occurrences of participants changing their minds and

divide by the number of participants that assign that task part rating overall. Notice the total absence of participants changing their minds within Phase 3. To qualify for category membership, an annotator must move away from the attribute in question and then return. Because the Audience attribute is the final one they attend to during Phases 1 and 4, it may explain why there is also total absence here. It appears not to make a difference how participants judged the attribute and task part where the change was made.

Figure 9.6

Change of mind regarding an attribute value (having moved away from, then returns) − Attribute and Task Part Questionnaire Rating

Main Point
- *easy₁₅*
- *neither₃*
- *difficult₆* -

Other Point
- *easy₈*
- *neither₁₃*
- *difficult₃*

Feature
- *easy₉* -
- *neither₁₀*
- *difficult₅* -

Protagonist
- *easy₁₆*
- *neither₄* -
- *difficult₄*

Antagonist
- *easy₈*
- *neither₈*
- *difficult₈* -

Other Character
- *easy₇* -
- *neither₁₅*
- *difficult₂* -

Narrator
- *easy₇* -
- *neither₁₆*
- *difficult₁* -

Audience
- *easy₆* -
- *neither₁₀* -
- *difficult₈* -

Related Reader
- *easy₄* -
- *neither₁₁* -
- *difficult₉* -

Related Story
- *easy₄* -
- *neither₁₅* -
- *difficult₅* -

Legend:
- ○ *Relative proportion of indexical events within attribute rating*
- ● *Relative proportion of relational events within attribute rating*
- ▪ (grey) *Relative proportion of indexical events within task part rating*
- ▪ (dark) *Relative proportion of relational events within task part rating*

Indexing / **Relating**

Indexing		Relating
Very Easy₁ -		- *Very Easy₁*
Easy₈ ▪		- *Easy₇*
Quite Easy₈ ▪▪▪▪▪▪▪▪▪▪▪		- *Quite Easy₁₂*
		Quite Difficult₂
Quite Difficult₅ ▪▪		-
Difficult₂ ▪▪▪▪▪▪▪▪▪▪		- *Difficult₂*
Very Difficult₀ -		- *Very Difficult₀*

It tends to be certain participants and not others that will return to an attribute and make changes after having moved on to something else. For these participants, previous decisions are not fixed and forgotten but are influenced by what they are doing now. Other participants make a clear distinction between past and present actions; what felt right at the time is what matters not how to improve upon it in the light of experience.

According to our attribute complexity scale, attributes towards the simple end are changed least and those around the median are changed most.

Table 9.6

Change of mind regarding an attribute value (having moved away from, then returns) – Story set membership

Story Set	*A*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	4	0	3	0	0	0	1	3	0	0	3	1	0	0	1	1	1	1	3	0	0	1
Incidents per set	7						4						6						6					
Total Incidents	23																							

Table 9.7

Change of mind regarding an attribute value (having moved away from, then returns) – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	3.0	0	4.0	**5.5**	**1.5**	**6.0**	**0**	2.0	1.0	0
Totals	7.0			**13.0**						3.0
	23.0									

(A3) "Can I…?"

The main significance of this category is that participants apparently expect that they can only make one suggestion, even given that the UI is designed to make known by the size of the suggestions collection boxes, by the presence of the add and remove buttons and by the wording on the instruction labels that, apart from *Main Point*, an unlimited number of

suggestions are allowed. This is just one of many examples of the imperative of UI design generally, and in the present case for interpreting data. In other words, it cannot be assumed that just because a participant makes exactly one suggestion that they actually want to make that suggestion, they might feel 'I have to say something'; equally they might want to make more than one 'if only it were legal'. Indeed, some participants who choose to enter Phase 4 do so because they want to replace what they thought they ought to say with what they actually want to say. The most relevant questionnaire response here is the degree to which the participant feels restricted (VR, R, QR, U or VU).

(A3.1) "Can I have more than one [attribute value]?"

Except for *Main Point*, for the indexical attributes the answer to this question is 'yes'. In the case of the *Related Story* attribute, there are occasions where the participant would like to do things that aren't facilitated. These include relating the same pair under various labels and relating different pairs under the same label.

(A3.1.1) "Can I have more than one [attribute value] generally?"$_5$

> **Related Story**, d_{23} {d, U} Story 8, Clip 53.55 – 54.03 *"You can relate more than one yeah? [...]"*

(A3.1.2) "Can I type more than one?"$_6$

As well as explicit requests to type multiple suggestions, this category shows where participants announce that they have multiple suggestions that they could make if permitted. The difference between these and the cascading suggestions is just the rate of appearance: they will either appear simultaneously or with a sizeable gap between whereas a cascade is a rapid sequence.

> **Related Reader**, d_3 {e, U} Story 8, Clip 103.50 – 104.21 *"[Cascading suggestions]*
> *Oh as a second relation; I add, then I make another one…okay I didn't realise I*
> *could do that"*

(A3.1.3) "Can I also [select/tick/type]?"[18]

As well as explicit queries regarding the number and form of suggestions allowed, the

category also captures incidents where the annotator has indicated that they are unaware of

an input facility which the mediator now draws their attention to.

> **Protagonist**, c_6 {d, U} Story 3, Clip 12.53 – 13.18 *"***[Remarking on the specific**
> **nature of the domain menus]** *I can just [type suggestion]?"*

(A3.2) Can I say what I want? I.e. how free is free input allowed to be?[21]

In the main this category shows participants beginning to explore the idea that they can,

within the constraints of the task guidelines, respond to the story in the way that they feel

inclined to.   Occasionally however, the guidelines themselves appear ambiguous.

Participants may then be confused as to whether their suggestions should come from the

personal self or the professional self; whether that is, they should be based on what they *feel*

or what they *think*. They might also be confused as to whether they should respond to the

text per se or the story they find within. A demonstration of this is concern with the use of

particular words and whether or not they are contained in the text.

> **Feature**, d_8 {n, QU} Story 4, Clip 08.40 – 09.07, *"Can I do this kind of combination*
> *or do I have to follow the words that I found in the text?"*

(A3.3) Can I do nothing?[11]

This category applies to situations either where the participant doesn't want to make any suggestions whatsoever or doesn't want to add anything of their own. On rare occasions too, they will make a verbal suggestion but choose not to record it.

> **Related Reader**, c_{16} {d, QU} Story 11, Clip 72.30 – 72.52 *"***[Remarking that a particular story does not relate to them as reader]** can I leave that blank?"*

(A3) Data analysis

The only difference between Figure 9.7 and those above: Figures 9.3, 9.5 and 9.6 is that the ratings on the right hand side of the diagram are for level of restriction felt generally, and so the figures attaching to the restriction categories are the same for both the indexing task part and the relating task part. This side of the diagram shows that the few participants that felt relatively restricted have a larger presence in this category than those that felt relatively unrestricted. Meanwhile, the left hand side of the diagram shows that the participants that contribute most to this category rate the attribute concerned as 'difficult' to annotate.

The attribute that causes most occurrences of 'Can I?' is Other Point. Other Character is the attribute that causes least occurrences and this may be because the participant, having already annotated the main characters, understands by now what they can and cannot do.

Table 9.8 shows that the story set that provoked the question most is *d* but this is largely due to participant d_3. Story set *b* is barely represented.

As we would expect from Table 9.9, attributes we have placed towards the complex end of our scale are where most occurrences of 'Can I?' are found.

Figure 9.7

Can I? – Attribute and Task Questionnaire Rating

Main Point
$easy_{15}$ ○○
$neither_3$ -
$difficult_6$ ○○○○○

Other Point
$easy_8$ ○○○
$neither_{13}$ ○○
$difficult_3$ ○○○○○○○○

Feature
$easy_9$ ○○○○
$neither_{10}$ ○○○○○○
$difficult_5$ -

Protagonist
$easy_{16}$ ○
$neither_4$ -
$difficult_4$ ○○○○○○○○○○

Antagonist
$easy_8$ ○○○
$neither_8$ ○
$difficult_8$ ○○○

Other Character
$easy_7$ -
$neither_{15}$ ○○
$difficult_2$ -

Narrator
$easy_7$ ○○○
$neither_{16}$ ○
$difficult_1$ -

Audience
$easy_6$ ○○
$neither_{10}$ ○
$difficult_8$ ○

Related Reader
$easy_4$ ●●●
$neither_{11}$ ●●●
$difficult_9$ ●●●

Related Story
$easy_4$ ●●●
$neither_{15}$ ●
$difficult_5$ ●●●●●●●

○ *Relative proportion of indexical events within attribute rating*

● *Relative proportion relational events within attribute rating*

▪ *Relative proportion of indexical events within task rating*

■ *Relative proportion of relational events within task rating*

Indexing   ***Relating***

Very Unrestricted$_1$ -   -   *Very Unrestricted$_1$*

Unrestricted$_{13}$ ▪▪▪▪   ■   *Unrestricted$_{13}$*

Quite Unrestricted$_8$ ▪▪▪   ■   *Quite Unrestricted$_8$*

Quite Restricted$_1$ ▪▪▪▪▪▪▪   -   *Quite Restricted$_1$*

Restricted$_1$ ▪▪▪▪   ■■■   *Restricted$_1$*

Very Restricted$_0$ -   -   *Very Restricted$_0$*

Table 9.8

Can I? – Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	0	4	4	1	1	2	0	2	0	2	2	1	1	2	0	2	4	6	1	11	2	2	5	6
Incidents per set	12						7						15						27					
Total Incidents	61																							

Table 9.9

Can I? – Attribute complexity

	Complex			Median				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	12	6	8	**5**	**3**	**6**	**9**	6	3	3
Totals	26			**23**						12
	61									

(A4) "What does it mean?"

The stories being domain specific provoke many enquires; usually but not always these come from participants in the first session. Here, it indicates a concern with comprehending detail and not being satisfied merely with gist. Where enquiries are about task instruction terms, the category highlights those that need to be avoided or at least supported by explanation in the design of user interfaces and task instructions. The relevant questionnaire rating for this category is relative ease or difficulty.

(A4.1) "What does [task instruction term or expression] mean?"

Some entries in this category are where participants are able to answer the query themselves and sometimes queries are made in an indirect way, i.e. by participants' behaviours. Usually the participant is querying a written instruction but just occasionally it is the mediator's explanation of a written instruction. *Related Reader* queries arise in three places: main screen, guide and relate screen itself. Many participants interpret it in the same way that they interpret *Audience*: as author implied. Whereas they quickly grasp the potentiality of *Audience*, they are less able to see *Related Reader* as referring to them specifically, but not always since as one participant comments on the questionnaire: *"...relating a story to oneself is something that one does spontaneously, every time one reads a story."* The greatest number of queries are with regard to Phase 1 terms and expressions but there are also several queries regarding Phase 3 terms and expressions.

(A4.1.1) Phase 1 term or expression$_{23}$

> **Main**, b_{18}, {QD} Clip 12.04 – 12.27 *"... 'Index over the –' [pause] I'm not sure I know what you mean by that ..."*

(A4.1.2) Phase 2 term or expression$_2$

> **Guide 1**, c_6, Clip 03.48 – 04.01 *"What does it mean skim – skim read?"*

(A4.1.3) Phase 3 term or expression$_{15}$

> **Related Reader**, d_3, {e, E} Story 4, Clip 96.34 – 96.40 *"Is that I make my motivation, to relate myself?"*

(A4.2) "What does [attribute label] mean?"[14]

Here it is the meaning of the attribute label itself that is being queried.

    Protagonist, d_{19} {e, D} Story 4, Clip 23.52 – 24.14 *"What is a protagonist again?"*

(A4.3) "What does [term or expression in the story] mean?"[57]

There are a number of kinds of query that can be made regarding a story's meaning. This category is just concerned with the meanings of isolatable words and expressions. When considering those expressions that are more context dependent, categories such as **Commenting on the meaning of the physical text** in the next section are more appropriate. The sequencing of incidents is arranged to give a clearer view of the number of queries per expression and per story. Stories 1, 3 and 4 provoke least; stories 5 and 7 most. The size of the category is mainly due to participants being unfamiliar with the domain, although there are also some queries about the meanings of figurative terms and expressions, especially where the participant's first language is not English.

    Point, a_5, Story 9, Clip 40.25 – 41.01 *"MMR"*

(A4.4) "What does [story title term] mean?[5]

This category collects incidents where the participant queries a term in it title context as opposed to its *Main Point* context although lexically, these are identical. Queries regarding the latter form a separate category.

    Read, a_4, Story 7, Clip 45.44 – 46.25 *"…I don't understand…this topic…this 'triage'…and what is this 'A+E'?* **[Remarking on the unfamiliarity of the domain]***"*

(A4.5) "What does [editor's / previous reader's suggested attribute value] mean?"[33]

> **Feature**, d_{23}, Story 8, Clip 21.48 – 22.11 *"What is that [Colles]? [...] There's me not knowing [...]"*

(A4.6) "What does [domain menu term] mean?"[12]

For every participant who queries a term in order to decide whether it is fitting to select, the annotation data reveals others who may, if there were definitions, annotate differently. Mainly this has to do with participants not realising the speciality nature when its role names suggest otherwise, e.g. 'public' and 'general'. The questionnaire rating most relevant to this category is the degree to which participants feel the menus useful (V, U or Q).

> **Audience**, a_{20} {n, V} Story 1, Clip 33.50 – 34.03 *"Fund Mangers – I wonder what they do … that must be primary care fund managers"*

(A4.7) "What does [narratological menu term] mean?"[14]

Apparent disinterest in the narratological menu is where the annotator either ignores it completely or scrolls it idly. If on the other hand, the annotator queries a term, it indicates interest and a readiness to select. Participants will do one of three things. They may express curiosity about the terms generally because they are unfamiliar with them, they may ask the mediator the meaning of a particular term or they may independently consult the definition of a term whilst questioning its meaning. Several points can be made. Annotators don't necessarily remember or take in all the advice contained in the guide so they don't always realise that definitions are offered. Then as discussed in the previous chapter, a displayed definition isn't always an acknowledged one, and an acknowledged definition may be associated with the term currently being viewed and not the term currently highlighted.

> **Feature**, a_{13} {e, U} Story 1, Clip 09.11 – 09.38 *"…I don't know most of these words [...]"*

(A4.8) "What does [menu] mean?"$_6$

Participants may enquire as to the function of a facility. In the case of this category, they want to know what a particular menu is for, whether it is selectable and what it means to select from it.

> **Narrator**, a_{13} {e, U} Story 1, Clip 20.55 – 21.18 *"Is this aspects or narrator; this seems to be the narrating aspects?"*

(A4) Data analysis

It is only the participants that contributed to this category and the story sets they were assigned to that are relevant here. The participant that made most queries, by far, was participant a_5, which accounts for story set *a*'s majority presence. The smallest presence, again by far, was story set *b*. Because there are ten subcategories of object that participants have queried, we can expect several from each participant. Exactly half the participants in the study made four or less queries, and all participants assigned to story set *b* were in this half; the other half made more than four.

The object that generated most queries was the meaning of terms and expressions within stories. Other terms and expressions that generated a large number of queries were those that the editor, and occasionally other annotators, had used.

Table 9.10

What does it mean? – Story set membership

Story Set	a						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	14	44	6	10	3	5	1	4	1	1	2	2	6	20	4	8	10	2	0	17	2	3	7	8
Incidents per set	82						11						50						37					
Total Incidents	180																							

(A5) Evidently considering two or more (non-point) attributes simultaneously[34]

Because the experimental interface is designed over several consecutive screens it gives an impression that story annotation is an ordered affair. To try to redress that, annotators are allowed to move among screens during the indexing phases of a given story and to suspend annotation of one story and attend to another. Although most annotators keep to the sequence, they still demonstrate that deciding which attribute label to assign is often difficult. As the annotation data itself shows, participants will be reminded by their suggestions for one attribute of what they suggested or might suggest for another attribute whether on the same or a separate screen. The reason why consideration of *Point* attributes is not included is that the facility to promote and demote makes it anyway inevitable. What is particularly interesting is where the annotator during a later phase, will reuse suggestions made on another dimension during an earlier phase. The relevant questionnaire ratings for this category are relative ease or difficulty regarding each respective attribute and each respective task part.

> **Feature, Main Point,** c_{16}, {e, d, QD} Story 3, Clip 14.07 – 14.35 *"I would say that's quite an interesting one because that kind of moral reflects that idea of ... the main point of 'people didn't give a damn'"*

(A5) Data analysis

Table 9.11 shows that apart from story set *b* which generated only two incidents, all story sets generated more or less the same number of incidents but within these sets, some participants were highly active and some were entirely inactive. Except for story set *c* where it is two thirds, only one third of the participants assigned to each of the story sets showed evidence of considering two or more non-point attributes simultaneously.

Table 9.11

Evidently considering two or more (non-point) attributes simultaneously – Story set membership

Story Set	a						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	11	0	0	1	1	0	0	0	1	0	2	1	0	6	0	1	5	5	0	0	0	0
Incidents per set	12						2						10						10					
Total Incidents	34																							

(A6) "For me it's X" or similar i.e. the participant announces a personal perspective[28]

This category more than any other, contains incidents displaying story engagement.

Often there is emphatic disagreement with the editor's suggestion, and often the attribute in question is *Main Point* or *Protagonist*, i.e. those which establish perspective.

Once again, the most relevant questionnaire response is the degree of restriction felt.

> **Main Point**, a_5 {e, R} Story 1, Clip 10.43 – 11.20 *"[...] In the story, for me the important is this: that technology err will cover all, so the um patient um will check ... their ... health ... their self ... This is the point"*

(A6) Data analysis

Most noticeable in this category is that there are very few incidents generated by the relational attributes and these were made by participants who rated the attribute as not difficult to annotate and also rated the task as a whole as relatively unrestrictive. The Main Point and Protagonist attributes are where participants are most vocal. According to our own complexity ranking, these attributes fall close to the median but participants were more likely to rate them as difficult to annotate. Participants that announce a strong personal perspective during the indexing phases are also more likely to judge the task as a whole as relatively restricted.

Table 9.12 shows that all participants assigned to story set *c* announce a strong personal perspective at least once during the task, and in contrast, participants assigned to story set *b* are least vocal.

Figure 9.8

"For me it's X" or similar i.e. the participant announces a personal perspective – Attribute and Task Questionnaire Rating

Main Point
  easy₁₅   ○○○○
  neither₃   -
  difficult₆ ○○○○○○

Other Point
  easy₈   ○
  neither₁₃ ○
  difficult₃ -

Feature
  easy₉   ○
  neither₁₀ ○
  difficult₅ -

Protagonist
  easy₁₆   ○
  neither₄   ○○○
  difficult₄ ○○○○

Antagonist
  easy₈   -
  neither₈   ○○○
  difficult₈ ○

Other Character
  easy₇   -
  neither₁₅ ○
  difficult₂ -

Narrator
  easy₇   ○
  neither₁₆ ○
  difficult₁ -

Audience
  easy₆   -
  neither₁₀ -
  difficult₈ ○

Related Reader
  easy₄   ●●●
  neither₁₁ -
  difficult₉ -

Related Story
  easy₄   -
  neither₁₅ ●
  difficult₅ -

○	*Relative proportion of indexical events within attribute rating*
●	*Relative proportion relational events within attribute rating*
▪ (grey)	*Relative proportion of indexical events within task rating*
▪ (black)	*Relative proportion of relational events within task rating*

Indexing		**Relating**
Very Unrestricted₁	▪▪▪▪	- *Very Unrestricted₁*
Unrestricted₁₃	▪▪▪▪	■ *Unrestricted₁₃*
Quite Unrestricted₈	▪▪▪▪	- *Quite Unrestricted₈*
Quite Restricted₁	▪▪▪▪▪▪▪▪	- *Quite Restricted₁*
Restricted₁	▪▪▪▪▪▪▪▪▪	- *Restricted₁*
Very Restricted₀	-	- *Very Restricted₀*

Table 9.12

"For me it's X" or similar i.e. the participant announces a personal perspective – Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	1	2	2	0	0	3	1	0	1	0	0	0	2	3	1	2	2	2	1	4	0	1	0	0
Incidents per set	8						2						12						6					
Total Incidents	28																							

Table 9.13

"For me it's X" or similar i.e. the participant announces a personal perspective – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	2	1	2	**4**	**2**	**10**	**1**	3	2	1
Totals	5			**17**						6
	28									

(A7) The editor's choice of attribute value

This category follows on from the last one. The strength of agreement and disagreement provides an indication of the level of involvement and understanding of the task. If that is, they were to do nothing but passively tick boxes it would reveal either complete disinterest or deep misunderstanding. But the closest to such behaviour is for participants to regard the editor's suggestion as more 'correct' than any that they could make.

Whereas **For me it's X** is indicated by the words participants speak, the most reliable indicator of both **Strong agreement with** and **Strong disagreement with** is just the sound

they make. The words themselves are fairly uninformative here, as is speed of response. The remainder of this category provides clear examples of how the editor's indexing is useful at least in providing a starting point, something to work on.

(A7.1) Strong agreement with$_{30}$

For the *Feature* attribute in particular, strong agreement with the editor is an indicator of saliency. Like most other categories, judgement is relative only to the participant's own task behaviour; no matter how similar the incident, what would qualify for one participant may not necessarily qualify for another.

> **Other Point**, d_3 {e, U} Story 12, Clip 61.21 – 61.27 *"yes definitely, I agree with that"*

(A7.2) Strong disagreement with$_9$

Because of the obvious overlap between this and category **For me it's X**, those incidents won't be repeated and all that will be shown are other expressions of strong disagreement including those incidents where participants express a desire to make explicit their disagreement.

> **Narrator**, a_{12} {n, U} Story 5, Clip 25.11 – 25.18 *"***[Not treating style of narration as being a mutually exclusive choice]** Um, no I won't have this one, I don't like it; I don't like it"*

(A7.3) Commenting on a value weakly agreed or disagreed with[80]

Expressions of weak agreement and disagreement can reveal more about a participant's thought processes than reactionary expressions of **Strong agreement with** and **Strong disagreement with**. This category shows a number of things; among them, that participants will agree with suggestions that they wouldn't actually make themselves. Some participants draw attention to the idea that agreement, particularly for the *Point* attributes, is relative because a story can be read from a number of perspectives. This helps explain why they feel able to demote the editor's *Main Point* even though they strongly disagree with it. As for **Strong disagreement with**, some participants would like to make explicit any disagreement and there are one or two observations that the editor's suggestions are usually drawn directly from the text. These observations are interesting because it is found that a mark up strategy adopted by some participants makes the task just a matter of agreeing with suggestions *because* they appear in the text. When this conceptual model is challenged by the presence of suggestions that don't appear in the text, it provides an opportunity for these participants to begin to regard the editor's suggestions in quite a different way and thereby engage in the stories at a deeper level.

> **Main Point**, c_2 {e, U} Story 7, Clip 15.48 – 16.19 *"I don't know that that's really the point of the story.* **["For me it's X" or similar]** *So I'm going to demote that to Other Point – It starts with that but I somehow felt the story went another way ... I think I'm going to promote that one ... to the Main Point"*

(A7.4) Customising the editor's suggestion to achieve the preferred interpretation[4]

This category collects incidents of changes to the editor suggestion that are slight rather than fundamental. The distinction is made because although participants may in **Commenting on a value weakly agreed or disagreed with** talk in terms of keeping the editor's suggestion but making it more their own, the resulting suggestions are often very different. The size of

this category shows that minor change is rare. One possible reason is that the user interface is editorially preventative. The annotator is forced to type anew any suggestion rather than copy and modify the editor's suggestion.

> **Other Point**, d_3 {e, U} Story 8, Clip 40.22 – 40.42 *"... I would say that ... I would reword it that…"*

(A7.5) Indicating that they wouldn't independently suggest a value now agreed with$_5$

This category just provides a demonstration of how annotators will accept other people's suggestions where they are not fundamentally different from their own unexpressed ideas, even if expressed in technical or figurative terms.

> **Other Character**, a_{20} {n, QU} Story 1, Clip 31.21 – 31.36 *"Other Characters – I don't think there are. Yeah he is there because that's what she's doing* **[Offering an explanation for a suggestion]** *Yeah because that's the whole purpose isn't it, you're doing it for that – otherwise it would be a waste of time. Yeah"*

(A7.6) The only thing I can do is word it differently; the meaning will be the same$_4$

This category shows participants in basic agreement with the editor deliberating whether to make it their own by **Customising the editor's suggestion to achieve the preferred interpretation** and deciding not to.

> **Other Point**, b_{14} {e, U} Story 2, Clip 09.33 – 10.38 *"Can I expand a point as well? [...] This one I agree but um [...] I guess I can leave it as it is [...] Actually I think it probably is good enough actually because I couldn't probably add anything more that would improve that ..."*

(A7.7) Rearranging the editor's suggested character roles$_{18}$

This category as a clear though often unarticulated case of **For me it's X** records where a participant's suggestion for one character role is identical or at least very similar to the

editor's suggestion for a different character role. It does not matter whether the choice is final as recorded in Chapter 7 or an intermediate one. For example, one participant initially disagrees, quite strongly, with the editor but is still thinking of those choices on a subsequent screen **Evidently considering two or more attributes simultaneously** and influenced by the editor's indexing there begins **Indicating that they would like to move away from the current screen in order to do something they feel they ought to be able to do at this point** that is, they have a **Change of mind regarding a Phase 1 attribute value**.

> **Protagonist, Antagonist, Other Character**, c_{22} {d, d, d, QU} Story 11, Clip 45.00 – 48.32 *"I could almost see this as the other way round entirely* **[Previous readers' suggestions]***"*

(A7) Data analysis

Participants actively respond to the editor's choice of attribute values, and often voice opinion as they do so. The largest category captures utterances participants make as they weakly agree or disagree with the editor's choice. Other sizeable categories capture strong agreement with the editor and a kind of partial agreement where participants will rearrange the roles of characters the editor has suggested. Figure 9.9 shows this character transposition pattern. The most popular move is between Protagonist and Antagonist. It can be seen from the centre of the diagram that occasionally all three character roles are reorganised.

Character transposition data is included only on the right hand side of Figure 9.10, not the left but it can be found in Part B of the technical report associated with this thesis. Also absent is relational data and this is because the editor makes suggestions only on indexical dimensions. Participants are most vocal in respect of Other Point and Feature, which as Table 9.15 shows we ranked as relatively complex, and Main Point, on the median. Participants are more likely to have something to say about the editor's annotation if the

attribute concerned was one they rated 'difficult'. However, their contributions to the category as a whole are not affected by their judgements regarding degree of restriction felt.

Table 9.14 shows that participants assigned to story set b are least vocal but notice also that the high scores of the other story sets are due to a certain group of participants, in particular d_3 and a_{12} who have contributed most to this category.

Figure 9.9

Rearranging the editor's suggested character roles

Protagonist   3   Antagonist

2

10   3

· Other Character
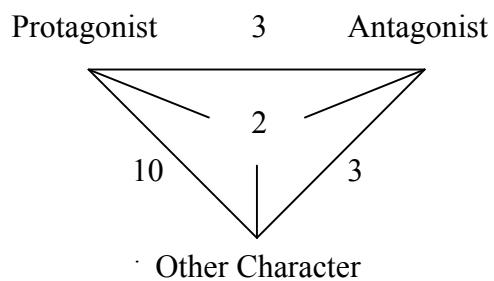
Figure 9.10

The editor's choice of attribute value – Attribute and Task Questionnaire Rating
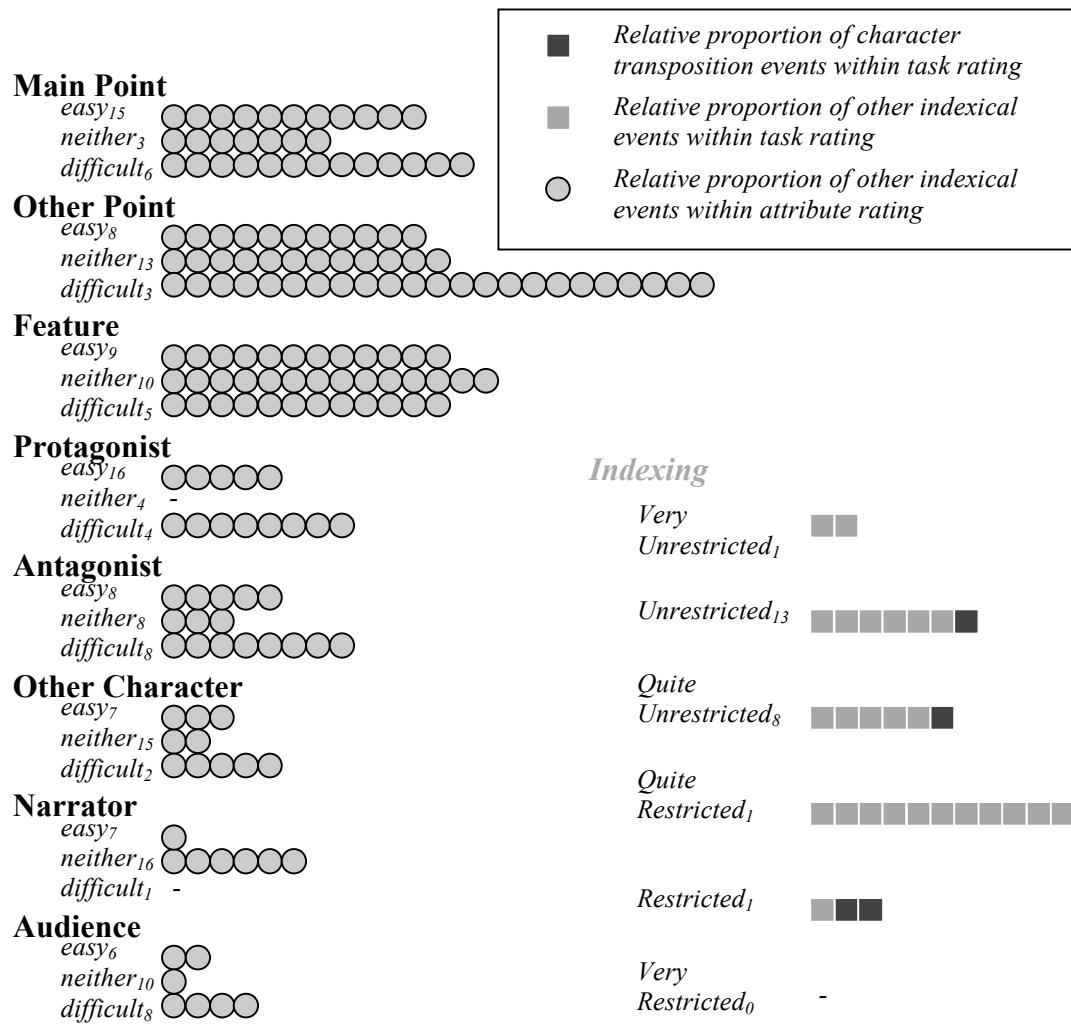
Table 9.14

The editor's choice of attribute value – Story set membership

Story Set	a						b						c						D					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	1	3	18	0	1	14	2	3	1	5	2	4	12	6	1	10	11	10	1	20	4	5	4	12
Incidents per set	37						17						50						46					
Total Incidents	150																							

Table 9.15

The editor's choice of attribute value – Attribute complexity

	Complex			Median				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	31.0	-	31.0	**18.2**	**13.2**	**26**	-	15.7	10.0	5.0
Totals	62			**57.4**						30.7
	150									

(A8) Remarking on the unfamiliarity of the domain₈

This is an interesting category for it shows the diversity of attitudes with which participants approach the task. Some brush the unfamiliarity aside and say what they think regardless, for others it is an obstacle, stifling expression but one that curiously during the relating phase is removed, allowing these participants to at last, say what they think. As observed earlier, it's as if for these participants, the editor's indexing is somehow 'correct' and they hardly dare to suggest something better although they all manage to.

> **Discussion afterwards**, d_{10}, Clip 46.12 – 46.18 *"…and [medics] they'll probably understand it a bit better as some of the context is a bit confusing…"*

(A8) Data analysis

It is perhaps surprising that even though only one third of participants were medics there are so few incidents in this category. Most remarks were made during discussion after and not during the task itself. A reason for the majority presence of story set *a* may be that, like story set *c*, all stories were drawn from *professional* rather than *social* or *technological* discussion. Why then did no participant assigned to story set *c* remark about the

unfamiliarity of the domain? It may be that according to Figure 8.1 in Chapter 8 above, story set *c* had mostly simple stories whereas those in story set *a* are mostly complex.

Table 9.16

Remarking on the unfamiliarity of the domain – Story set membership

Story Set	*a*						*b*						*c*						*D*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	2	0	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Incidents per set	6						1						0						1					
Total Incidents	8																							

(A9) Concern with truth or semantic correctness

The power of stories it is well known, is that they draw people to them, engage them once there, and remain memorable long after. Generally speaking, the story medium is inappropriate where truth and correctness are important. At the same time, the mechanisms by which an account is turned into a story will usually involve modification in these areas. Perhaps it is because they are here presented as point-structured medical stories that those two factors provoke an expectation in people, that the story can only be true and that their annotation of it should be correct.

(A9.1) Truth of a story text$_2$

> **Read**, *b$_7$*, Story 7, Clip 40.30 – 40.45 *"***[Responding with surprise]** *Is that really true [...] point 4? Incredible ..."*

(A9.2) Correctness of an attribute value$_{10}$

> **Other Character**, c_{21}, Story 7, Clip 74.29 – 75.08 *"[**Moving beyond the text to suggest character roles]** Hang on, let's take that out ... I've just thought what the proper term is there"*

(A9.3) Does it make sense?$_8$

This category records where participants seek approval during or after their free-text entry. Not included are those incidents where the participant asks the question in a more rhetorical way.

> **Related Story** (7), c_6 {n, QD} Story 11, Clip 75.05 – 76.08 *"[**Finding the word or phrase]** 'low level operators' does it make sense? [...]"*

(A9.4) Consulting the story text in order to formulate a closely corresponding suggestion$_5$

Participants may, like the editor, enter free text values that are identical or very similar to story text fragments. Some of these suggestions are entirely due to saliency and ease of recall. To qualify for inclusion in this category however, requires an obvious return to the relevant text fragment in order to achieve a particular wording.

> **Feature**, a_{12}, Story 9, {n, E} Clip 43.03 - 43.25 *"...but for some of the other points I had to go back to the text to actually...I thought that was appearing but maybe it was just the way I wanted to word it; I wanted to make it as close to the text as possible; so I had to come back to the text to see how to formulate it"*

(A9) Data analysis

Most encouraging is that relatively few participants are concerned with truth and semantic correctness; in fact eleven do not contribute to this category at all and only eight make more than one contribution.

Table 9.17

Concern with truth or semantic correctness – Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	1	0	3	0	0	0	4	0	0	1	0	2	1	3	2	1	2	0	0	2	1	0	2	0
Incidents per set	4						7						9						5					
Total Incidents	25																							

(A10) Concern with spelling or grammar

This category label refers to annotators' concern and may in an indirect way say something about how spontaneous or measured their suggestions are. But it is also becomes an issue during annotation data analysis as the previous chapter has shown. An advantage of the menu is that it guarantees uniform and unambiguous input. Free text on the other hand presents a challenge when attempting even manual semantic clustering. For example, did the participant by using a lower case initial intend to depersonalise a suggested story character, and did they by using the singular for their audience suggestion intend an audience of one individual?

(A10.1) General concern$_3$

Related Story (1), c_{22}, Story 11, Clip 73.18 – 73.42 *"Not good English [...]"*

(A10.2) Asks e.g. 'Is that right?'$_{16}$

This is where the participant indicates that they would prefer to make a correction.

> **Other Character**, a_{13}, Story 9, Clip 39.52 – 40.01 *"Did I spell right?"*

(A10.3) States e.g. 'Don't know if that's right'[7]

Here, the participant indicates that they would prefer not to make a correction.

> **Related Story** (1), c_{15}, Story 7, Clip 43.56 – 44.26 *"*[**Employing verbal means to organise, clarify or get approval**] *oh I can't remember how to spell that…well you know what I mean"*

(A10) Data analysis

Again it is possible that story sets *a* and *c* have most presence in this category because all of them were drawn from *professional* rather than *social* or *technological* discourse. Notice that these are the only two sets where the medics as well as the knowledge media researches express concern.

Table 9.18

Concern with spelling or grammar – Story set membership

Story Set	a						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	1	2	2	2	2	3	1	0	0	0	0	2	1	1	0	2	1	0	4	1	1	0	0
Incidents per set	9						4						7						6					
Total Incidents	26																							

(A11) Creative and unusual input value types[12]

Rather than following the editor's suggestions with regard to attribute value type, e.g. that characters and audiences are nouns, perhaps adjectival, some participants choose to follow the guide advice: 'There is no such thing as an incorrect suggestion'. The risk of course is that these values won't cluster meaningfully and will appear incomprehensible to future readers. Hence category **Handling unconventional input types** permits the resolution of an input. In task terms however, and accompanied by the recording, many of the suggestions

that appear strange on paper not only make sense but provide reaffirmation of the potential of this medium. For example, Audience suggestions such as 'anyone' and 'people' are simply **Remarking on or otherwise suggesting the general interest nature of the stories** which originated as stories told by and for medical people. Related Reader too becomes in many cases, a trigger for **Telling verbally, their own story in response**.

For those remaining, strangeness is a good indicator that the annotator has moved beyond the text per se and has become involved in construction. To show this more clearly, if the participant does not say anything, what they type is reproduced. For this category the most relevant questionnaire response is the degree of restriction felt.

> **Other Character**, c_{16} {n, QU} Story 11, Clip 26.22 – 28.31 *"And one thing I would also mention is this interesting concept 'absence of witnesses; absence of hospitals' rather than witnesses and hospitals* **[Evidently considering two or more (non-point)**

(A11) Data analysis

Although this category is small it is still interesting to see which attributes trigger creative and unusual input. For the most part these were: *Audience*, an attribute the annotation guidance described as 'potentially interested groups', *Other Character* described as 'peripheral' and *Feature*, described as 'evocative'. Even though most contributors to this category rated the task overall as Unrestrictive, so did half the participants in the study, which explains its relatively low presence on the right of the diagram. Compare this with the one participant who rated the task as Restrictive but has nevertheless made most contributions.

Story set *b* is the only one not to have triggered creative and unusual input but from the small size of the category it is difficult to say whether this has to do with the stories or the group assigned to annotate them.

Figure 9.11

Creative and unusual input value types – Attribute and Task Questionnaire Rating

Main Point
 easy$_{15}$ -
 neither$_3$ -
 difficult$_6$ -
Other Point
 easy$_8$ -
 neither$_{13}$ -
 difficult$_3$ -
Feature
 easy$_9$
 neither$_{10}$
 difficult$_5$ -
Protagonist
 easy$_{16}$ -
 neither$_4$ -
 difficult$_4$ -
Antagonist
 easy$_8$ -
 neither$_8$
 difficult$_8$ -
Other Character
 easy$_7$
 neither$_{15}$
 difficult$_2$ -
Narrator
 easy$_7$ -
 neither$_{16}$
 difficult$_1$ -
Audience
 easy$_6$
 neither$_{10}$ -
 difficult$_8$
Related Reader
 easy$_4$ -
 neither$_{11}$ -
 difficult$_9$ ●
Related Story
 easy$_4$ -
 neither$_{15}$ -
 difficult$_5$ -

Legend:
○ *Relative proportion of indexical events within attribute rating*
● *Relative proportion relational events within attribute rating*
▪ *Relative proportion of indexical events within task rating*
■ *Relative proportion of relational events within task rating*

Indexing		*Relating*
Very Unrestricted$_1$ -		- *Very Unrestricted*$_1$
Unrestricted$_{13}$ ▪▪▪▪▪		- *Unrestricted*$_{13}$
Quite Unrestricted$_8$ ▪	■	*Quite Unrestricted*$_8$
Quite Restricted$_1$ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪	-	*Quite Restricted*$_1$
Restricted$_1$ -	-	*Restricted*$_1$
Very Restricted$_0$ -	-	*Very Restricted*$_0$

Table 9.19

Creative and unusual input value types – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	2	3	0	1	2	0	0	1	0
Incidents per set	3						0						5						4					
Total Incidents	12																							

(A12) Offering an explanation for a suggestion, either verbally or textually[80]

The incidents in this category are a demonstration of how people often need to explain their suggestions, even if those suggestions agree with those made by the editor or previous readers. This may be because in the given context the value appears strange or it may be that generally, the value is commonly associated with something else. It therefore highlights a problem particularly for multi-perspective, free input story annotation: unsupported suggestions often won't make sense.

The difference between this category and **Employing verbal means to organise, clarify or get approval** is that the latter is an expression of difficulty and as such will usually precede an input whereas this one will usually follow or accompany input. For certain explanations and especially those that accompany input, it may be that little can be learned from showing them separate from their context of utterance in which case they will only occasionally appear here as well.

> **Other Point**, c_{22} {n, E} Story 11, Clip 41.07 – 41.15 *"[**Employing verbal means to organise, clarify or get approval**] A non-accidental injury, sort of perpetrated by the staff kind of thing; that's what I'm saying [...]"*

(A12) Data analysis

Attributes with the most presence in this very populated category are *Feature* and *Related Story*; those with least are *Main Point*, *Protagonist* and *Narrator*. It makes no difference how participants rate the attribute concerned and this appears to support our argument that they will want to explain suggestions that looks strange in print rather than because they are experiencing difficulty. On the other hand, according to our own ranking (Table 9.21), those attributes towards the complex end caused more offers of explanation than those towards the simple end, whilst those surrounding the median caused least explanation. No conclusions can be drawn from the right of Figure 9.12 which shows very little difference whether contributing participants rate the respective task part as relatively easy or relatively difficult.

Turning to individual participants and the sets they were assigned to (Table 9.20), we see that there are significant differences. Only five explanations are offered by just three members of story set *b* whilst at the other extreme, all six members of story set *c* offer in total thirty six explanations. Also noticeable is that whereas only one medic does not offer any explanation, six knowledge media researchers do not offer explanations.

Figure 9.12

Offering an explanation for a suggestion, either verbally or textually – Attribute and Task Part Questionnaire Ranking

Main Point
easy15
neither3 -
difficult6

Other Point
easy8
neither13
difficult3

Feature
easy9
neither10
difficult5

Protagonist
easy16
neither4 -
difficult4 -

Antagonist
easy8
neither8
difficult8

Other Character
easy7
neither15
difficult2 -

Narrator
easy7 -
neither16
difficult1 -

Audience
easy6
neither10
difficult8

Related Reader
easy4
neither11
difficult9

Related Story
easy4
neither15
difficult5

○ *Relative proportion of indexical events within attribute rating*

● *Relative proportion of relational events within attribute rating*

▪ *Relative proportion of indexical events within task part rating*

▪ *Relative proportion of relational events within task part rating*

Indexing		*Relating*
Very Easy1	- -	*Very Easy1*
Easy8		*Easy7*
Quite Easy8		*Quite Easy12*
Quite Difficult5		*Quite Difficult2*
Difficult2		*Difficult2*
Very Difficult0	- -	*Very Difficult0*

Table 9.20

Offering an explanation for a suggestion, either verbally or textually – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	5	0	2	6	2	0	0	1	0	2	6	3	1	15	4	7	1	10	0	5	1	9
Incidents per set	13						5						36						26					
Total Incidents	80																							

Table 9.21

Offering an explanation for a suggestion, either verbally or textually – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	17	16	8	**4**	**5**	**2**	**7**	7	4	10
Totals	41			**18**						21
	80									

(A13) Referring to the Authorial context

Many of the categories in this collection provide clear indicators of point-driven approaches to stories. This one shows how readers will often seek clues away from the story itself for comprehending content, identifying characters and so on.

(A13.1) Time of writing[1]

      Point, d_3, Story 4, Clip 07.33 – 07.35 *"Okay 'Time of authoring'"*

(A13.2) Place of writing₉

> **Other Character**, a_{12} {e, E} Story 1, Clip 14.57 – 15.06 *"…and seeing that it's happening in 'Britain'* **[Moving beyond the text to suggest character roles]***"*

(A13.3) Author's identity₂₂

> **Narrator**, d_{23} {n, QE} Story 12, Clip 40.29 – 40.35 *"I mean we know it's a GP"*

(A13) Data analysis

There are surprisingly few references to the authorial context and most are made during the annotation of the Point attributes. This screen offers the first opportunity for participants to read the story and the number of referrals here indicates that they are using the authorial context as an aid to understand the story text. Table 9.22 shows that the stories that caused most referrals, by far, were those in set *a*, and which according to our story complexity ranking (Figure 8.1, Chapter 8) was the most complex set overall. Table 9.23 on the other hand indicates that attribute difficulty is less of a factor in participants attending to the authorial context.

Figure 9.13

Referring to the Authorial context – Attribute and Task Part Questionnaire Ranking

Point
easy$_{23}$
neither$_{16}$
difficult$_9$-

Feature
easy$_9$ -
neither$_{10}$ -
difficult$_5$

Character
easy$_{31}$
neither$_{27}$ -
difficult$_{14}$ -

Narrator & Audience
easy$_{13}$
neither$_{26}$
difficult$_9$

Relate
easy$_8$ -
neither$_{26}$
difficult$_{14}$

Legend:
- Relative proportion of indexical events within attribute rating
- Relative proportion of relational events within attribute rating
- Relative proportion of indexical events within task part rating
- Relative proportion of relational events within task part rating

Indexing — *Relating*

Indexing		*Relating*
Very Easy$_1$ -		- Very Easy$_1$
Easy$_8$	■■■■■■	Easy$_7$
Quite Easy$_8$	■■■	Quite Easy$_{12}$ ■■■
Quite Difficult$_5$	■■■■■■■■	- Quite Difficult$_2$
Difficult$_2$ -	■■■■■	Difficult$_2$
Very Difficult$_0$ -		- Very Difficult$_0$

Table 9.22

Referring to the Authorial context – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	3	8	2	0	10	0	0	0	1	0	1	1	0	0	1	0	1	1	2	0	0	0	1
Incidents per set	23						2						3						4					
Total Incidents	32																							

Table 9.23

Referring to the Authorial context –Task Part complexity

	Complex		**Median**	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	1	4	**11**	5	5
Totals	5		**11**		10
	26				

(A14) Mediation

(A14.1) Handling unconventional input types[13]

Mediation almost inevitably means that the participant will change what they are doing. Because therefore, it is interesting to see how annotators are inclined to annotate mediations are few. Chapter 8 records those attributes for which participants in their markup will often depart from narratological convention. It shows a fairly common conception of Characters, including the Protagonist as lacking agency and persona; another is participants' understanding of the attribute Related Reader: some infer a generic or implied reader and others suggest hypothetical individuals. For these annotators the task part is made more difficult by the menu attached, and c_{16} articulates this: *"…especially if I kind of compare it to these kind of roles"*. On this attribute, it is felt that more could be learned by mediation. Enclosed in square brackets alongside the attribute name, is what the participant is trying to do in each case; the questionnaire response is degree of restriction felt.

> **Protagonist** [Institution], a_{12} {e, U} Story 8, Clip 52.09 – 52.38 *"***[Evidently considering two or more (non-point) attributes simultaneously]** *Would I be able to duplicate this [Antagonist]? Because here I would like to say the same thing at least for the 'Hospital'* **[Placing the narrator inside the story]***"*

(A14.2) Handling reluctance to make a suggestion[6]

Incidents in this category are where participants signal that they would like to make a suggestion but don't know how to begin to express it. A reluctance to use free input, indicates that for some participants, free input is perhaps too free.

> **Antagonist**, a_4 {n, QU} Story 1, Clip 12.24 – 13.45 *"It's like traditional way of nursing ... they don't want to have this ... what shall I put?"*

(A14.3) Directing attention to an attribute[23]

Although it isn't mandatory for participants to attempt every attribute, the mediator may interrupt the task in order to draw attention to an attribute. There are three reasons for drawing attention to an attribute: to ensure that the attribute won't be forgotten, to remind the participant of an attribute that has been forgotten and to ascertain whether apparent forgetfulness is actually deliberate avoidance. The questionnaire response that is probably most relevant is level of restriction felt. Most directions are to the Related Reader attribute; partly this is because of its positioning and size on the screen and partly because participants will often assume that the attribute is not relevant to them personally. Related Reader reminders that are made later rather than earlier are shown in the previous chapter as UI incidents.

> **Related Reader**, c_{22} {n, QU} Story 11, Clip 73.39 – 74.29 *"Oh right, um* **[Remarking that a particular story** *does* **relate to them as reader]***"*

(A14) Data analysis

Figure 9.14 shows that the mediator intervenes mainly during the mark up of the relational attributes and hardly at all for the mark up of the indexical attributes. The figure also gives a clear indication that there are many more interventions for those participants who rate *Related Reader* 'difficult' than for those who rate it 'easy'. Our own attribute ranking (Table

9.25) has positioned Related Reader on the median of the complexity scale. The right hand side of Figure 9.14 suggests that this intervention for relational attributes is helpful because all these participants have rated the task overall as being relatively unrestrictive.

The mediator intervened for all participants assigned to story set *a*, and all but one of the participants assigned to story set *b* (Table 9.24); there were considerably fewer interventions for story sets *c* and *d*. The highest intervention rate was for stories in set *a*, which supports our positioning of this set overall on the story complexity scale (Figure 8.1, Chapter 8); on the other hand, the lowest intervention rate was for stories in set *d*, which we put in second position of complexity.

Figure 9.14

Mediation – Attribute and Task Questionnaire Ranking

Main Point
  easy$_{15}$ ⬤(grey)
  neither$_3$ -
  difficult$_6$ -

Other Point
  easy$_8$ -
  neither$_{13}$ -
  difficult$_3$ ◯◯◯

Feature
  easy$_9$ -
  neither$_{10}$ -
  difficult$_5$ -

Protagonist
  easy$_{16}$ ◯◯
  neither$_4$ -
  difficult$_4$ -

Antagonist
  easy$_8$ -
  neither$_8$ ◯◯◯
  difficult$_8$ -

Other Character
  easy$_7$ -
  neither$_{15}$ ◯
  difficult$_2$ -

Narrator
  easy$_7$ -
  neither$_{16}$ -
  difficult$_1$ -

Audience
  easy$_6$ -
  neither$_{10}$ ◯◯
  difficult$_8$ -

Related Reader
  easy$_4$ ⬤⬤
  neither$_{11}$ ⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤
  difficult$_9$ ⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤⬤

Related Story
  easy$_4$ ⬤⬤⬤
  neither$_{15}$ ⬤⬤
  difficult$_5$ -

	Relative proportion of indexical events within attribute rating
◯ (grey circle)	*Relative proportion of indexical events within attribute rating*
⬤ (black circle)	*Relative proportion relational events within attribute rating*
▪ (grey square)	*Relative proportion of indexical events within task rating*
▪ (black square)	*Relative proportion of relational events within task rating*

Indexing   **Relating**

Very Unrestricted$_1$ - ⬛⬛⬛⬛ *Very Unrestricted$_1$*

Unrestricted$_{13}$ ▪▪▪▪▪⬛⬛⬛⬛ / ⬛⬛ *Unrestricted$_{13}$*

Quite Unrestricted$_8$ ▪▪▪ ⬛⬛⬛⬛⬛ / ⬛⬛⬛⬛⬛ *Quite Unrestricted$_8$*

Quite Restricted$_1$ - - *Quite Restricted$_1$*

Restricted$_1$ ▪▪▪▪ / ▪▪▪▪ - *Restricted$_1$*

Very Restricted$_0$ - - *Very Restricted$_0$*

Table 9.24

Mediation – Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	2	1	4	1	4	3	1	4	4	0	1	5	0	0	3	3	0	1	0	0	1	0	3	1
Incidents per set	15						15						7						5					
Total Incidents	42																							

Table 9.25

Mediation – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	0	4	1	**3**	**1**	**1**	**28**	2	0	2
Totals	5			**33**						4
	42									

(A15) Regarding the attributes hierarchically[7]

In part, this category extends '**Evidently considering two or more attributes simultaneously'** and as such helps explain strange input. Rather than regarding characters as actors, they are regarded as extraordinary features; story points meanwhile are regarded as extraordinary features of a different kind. This is how one participant viewed the hierarchical arrangement but others, judging by their suggestions presented in Chapter 7, had similar ideas. Occasionally, participants will impose hierarchical structure on one particular attribute. Where this attribute also happens to be a character, it is quite different to the

strategy '**Suggesting potential alternative characters for a role'** for in that case, the suggestions all occupy the same level.

> **Protagonist**, d_3 {d, U} Story 8, Clip 48.13 – 48.27 *"Again, I think there are different protagonists. This [German orthopaedic surgeon] is one. And the 'old lady' is definitely one. But the main protagonist, because this is autobiographic ..."*

(A15) Data analysis

With only seven contributions made by three participants, this strategy is used for a select set of attributes: Protagonist, Antagonist, Feature and Other Point, two of which, according to our ranking are relatively complex and one, relatively simple. As would be expected, the participants concerned have rated the task overall as relatively unrestricted.

Figure 9.15

Regarding the attributes hierarchically – Attribute and Task Questionnaire Ranking

Other Point
   easy$_8$ -
   neither$_{13}$ ◯
   difficult$_3$ -

◯	*Relative proportion of indexical events within attribute rating*
●	*Relative proportion relational events within attribute rating*
■	*Relative proportion of indexical events within task rating*
■	*Relative proportion of relational events within task rating*

Feature
   easy$_9$ -
   neither$_{10}$ ◯◯◯
   difficult$_5$ -

Protagonist
   easy$_{16}$ -
   neither$_4$ -
   difficult$_4$ ◯◯◯◯◯

Antagonist
   easy$_8$ -
   neither$_8$ ◯
   difficult$_8$ -

Indexing			*Relating*
Very Unrestricted$_1$	-	-	*Very Unrestricted$_1$*
Unrestricted$_{13}$	■■■■■	-	*Unrestricted$_{13}$*
Quite Unrestricted$_8$	■	-	*Quite Unrestricted$_8$*
Quite Restricted$_1$	-	-	*Quite Restricted$_1$*
Restricted$_1$	-	-	*Restricted$_1$*
Very Restricted$_0$	-	-	*Very Restricted$_0$*

Table 9.26

Regarding the attributes hierarchically – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0
Incidents per set	4						0						1						2					
Total Incidents	7																							

Table 9.27

Regarding the attributes hierarchically – Attribute complexity

	Complex			**Median**				Simple		
Attribute	Fea	R St	OP	**Pro**	**OC**	**MP**	**R Re**	Ant	Nar	Aud
Incidence	3	0	1	**2**	**0**	**0**	**0**	1	0	0
Totals	4			**2**						1
	7									

(A16) Characters

It's not surprising why Story 8 proved difficult when assigning character roles. Firstly, it is an example of two stories in one, each with its own set of distinct characters. Also the number of characters and potential characters is unusually high. Most difficult to decide is whether a character is central or periphery; easiest to decide is whether a character is Antagonist.

(A16.1) Indecision regarding the assignment of character roles[8]

Always, this category will involve perhaps several returns to the story text. One example of indecision is where the participant is evidently swayed by the editor's suggestion after initially disagreeing with it. They may also be swayed from an initial suggestion if the mediator asks them, without implying that it is incorrect, to clarify it.

> **Protagonist, Other Character**, a_5 {e, n, QE} Story 1, Clip 21.05 – 24.08 *"The protagonist of this situation; oh I don't know but for me it's the patient* **[Rearranging the editor's suggested character roles] ["What does domain menu term mean?"]** *Other character ... ah, with non-central role. The patient ... yes okay"*

Table 9.28

Indecision regarding the assignment of character roles – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	1	1	0	0	0
Incidents per set	3						0						3						2					
Total Incidents	8																							

(A16.2) Character roles

(A16.2.1) Moving beyond the text to suggest character roles[17]

This category is evidence of readers as constructors of the stories before them rather than passive consumers. Story construction involves expanding and filling the text so as to make it relevant and interesting to them personally. It is also therefore indicative of point-driven understanding.

> **Other Character**, b_{18} {n, QD} Story 10, Clip 40.30 – 40.47 *"Presumably there's a parent there as well but it doesn't actually say"*

(A16.2.2) Establishing one view in order to suggest an opposing one[2]

As well as being a special case of the category above, this one is representative of a clear strategy for character suggestion. Even if other participants have employed the same reasoning method, without an accompanying explanation, their actions won't qualify for inclusion.

> **Antagonist,** c_{22} {d, E} Story 11, Clip 46.30 – 47.39 *"*[Employing verbal means to organise, clarify or get approval] *So the opposite of that. It's almost the GP because he hasn't in my way [laugh] done what he should have done for this chap ..."*

(A16.2.3) Drawing on knowledge of the story's theme to suggest character roles$_4$

For some stories certain character roles may only be vaguely described or absent. In this case the participant may be able to make suggestions based on their own knowledge or experience. Even when the characters are very visible in the text the participant may choose to construct additional characters from memory.

> **Antagonist**, a_{20} {d, QD} Story 5, Clip 44.43 – 45.05 *"And I have to say fundamentally, they [Receptionists] can be quite difficult as well because as the front line people meeting people with mental illness in General Practice, they're not receptive or compassionate or empathic to their needs at all [...] from my point of view"*

(A16.2.4) Suggesting potential alternative characters for a role$_7$

That annotators would suggest multiple potential characters for a given role is understandable. In the first place actual characters are often only vaguely referred to in the text. In the second place, it signals that the annotator's approach to the Character attributes is just the same as their approach to other multi-value attributes: it might equally be *A*, *B* or *C*, so why choose between them, especially since the UI permits multiple suggestions? This category then is a representation of a particular annotation strategy. Sometimes the choice is between actors of the same kind, in which case the story remains relatively constant regardless of the instantiation. More interesting is where the potential instantiations are of quite different kinds for this indicates that the reader is able to adjust perspective and get a different understanding of the story with each one. Each entry here is a clear indication of the suggestion of alternatives, rather than the suggestion of multiple actors or multiple aspects of the same actor. It could be that what encourages the suggestion of clear alternatives is the availability of menus but notice that this mutual exclusivity only applies to the Protagonist role and to neither of the Antagonist or Other Character roles.

Protagonist, a_{17} {e, D} Story 9, Clip 27.50 – 28.23 *"So basically this could be any of - selecting any one you feel might be the – might fit that role"*

 (A16) Data analysis

Although sparse, Table 9.28 shows the pattern of indecision regarding the assignment of character roles (A16.1). For all story sets except *b*, which in terms of overall complexity, we have ranked as the second to most simple, there has been some indecision. Two participants from each of the other story sets: *a*, *c* and *d* have contributed to this category; all except one were knowledge media researchers.

The remaining categories (A16.2) are represented in Figure 9.16 which shows the far greater proportion of events raised by participants who rated the indexing task part as relatively difficult. Most events are raised by participants focused on what they regard as the 'difficult' to annotate *Antagonist* or the 'not difficult' to annotate *Other Character*. Fewer events are raised by participants focussed on what they regard as the 'easy' to annotate *Protagonist*.

According to Table 9.29, almost all A16.2 events are triggered by more professional type stories (sets *a* and *c*) and hardly any from the mixed sets (*b* and *d*).

Figure 9.16

Character roles – Attribute and Task Part Questionnaire Ranking
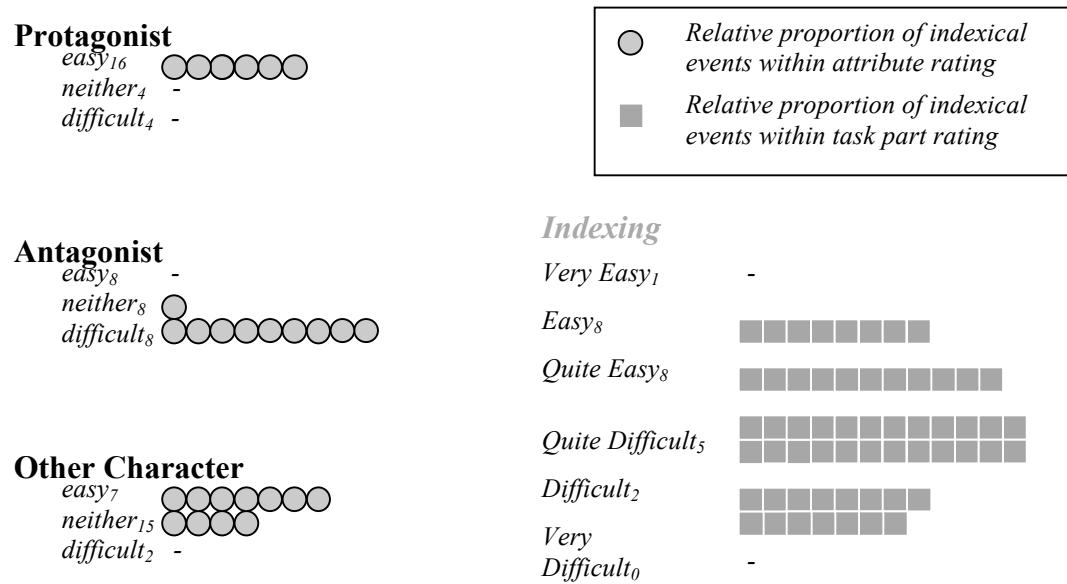
Table 9.29

Character roles – Story set membership

Story Set	a						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	4	2	2	5	0	0	0	0	1	0	1	1	0	3	8	1	0	1	0	0	1	0
Incidents per set	13						1						14						2					
Total Incidents	30																							

(A17) Narrator

Stories that appear complex do so for different reasons; one is that the style of narration is
mixed or difficult to determine. Readers' understanding of point-structured stories has to do
with trying to establish who is telling and how it is being told; they demonstrate point-driven
understanding by allowing narrator or style of narration to be multi-aspect.

(A17.1) Not treating style of narration as being a mutually exclusive choice[18]

A simplistic model of the story typically identifies one style of narration. This category as a special case of 'Can I have more than one?' shows participants identifying mixed styles of narration. Because a menu is offered for this attribute, it gives an opportunity to see whether these participants in particular find them generally useful.

> c_2 {n, U} Story 3, Clip 13.04 – 13.31 *"…'Unintrusive'…yes I think that is certainly true; I couldn't say who it is.* **[Selecting the editor's suggestion from a menu rather than agreeing directly]** *And probably a bit of that [Omniscient] as well – there we go"*

(A17.2) Suggesting potential alternative narrators[2]

The rareness of the suggestion of alternatives may be due to the presence of '**Not treating style of narration as being a mutually exclusive choice'.** That is, instead of concentrating on who the narrator might be, the participant identifies just one narrator but one that has a number of styles. For this and the remaining subcategories, it is the degree of restriction felt that is shown.

> c_{21} {n, QR} Story 7, Clip 76.37 – 77.14 *"***[Creative and unusual input value types]***"*

(A17.3) Commenting on the differentiation of Narrator and style of narration[4]

> c_{16} {n, QU} Story 11, Clip 28.37 – 28.58 *"So here you want almost to say the role of the person and the narrative position [...]"*

(A17.4) Commenting on style of narration$_{13}$

> **Protagonist**, d_3 {d, U} Story 4, Clip 24.24 – 25.26 *"[**Evidently considering two or more (non-point) attributes simultaneously**] In fact, the story is narrated – it's a story of this person who has to choose – who is choosing to* [reads story text] *mm, it's like there are – one story's 'I've left my job' ... the other story's ... in a way it's a flash back but it's also a story in the story that works as an allegory"*

(A17.5) Placing the narrator inside the story$_1$

One way in which conventional point structure and plot structure models differ is in their treatment of the narrator. In the first, the narrator is both the author and the protagonist, and this makes the protagonist as real as the author. In the second the narrator is the author's invention just as the story characters are. The annotation model, in borrowing from both traditions, accommodates either approach to the text. However because the annotator is initially encouraged to regard the story in a point-structured way, they may become confused by the separation of protagonist and narrator.

> **Protagonist**, a_{12} {e, U} Story 8, Clip 52.17 – 53.04 *"[**Employing verbal means to organise, clarify or get approval**] Yeah, they are in the story [...]"*

(A17) Data analysis

Now that we are focussing on a single attribute and participants', often imaginative, handling of it, the most informative questionnaire rating is the level of restriction felt. Although 92% of contributions were made by participants who judged the task overall to be relatively unrestricted, when we look to the number of contributions per participant, we find a different picture entirely. In Table 9.30 the number of participants is indicated by the subscript on the total number of contributions made and the number in parentheses is the result of their division.

Turning attention to the individual participants and the story sets they were assigned to, participants contributing least to this category were those from set *b*; those contributing most were from set *a*. Does this mean a difference between these two groups in their rating of the *Narrator* attribute? Not really, according to Figure 7.4 in Chapter 7; it shows that no participants assigned to story set *a* rated this attribute 'difficult' and only one participant assigned to story set *b* did so.

Table 9.30

Narrator – Task Ranking (Restriction)

VU	U	QU	QR	R	VR
0_1	25_{13}	10_8	2_1	1_1	0_0
(0)	(1.9)	(1.3)	(2)	(1)	(0)
35_{22}			3_2		
38_{24}					

Table 9.31

Narrator – Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	0	1	9	3	0	3	0	0	0	0	2	0	1	4	0	2	2	1	0	6	0	0	1	3
Incidents per set	16						2						10						10					
Total Incidents	38																							

(A18) Audience scope

As was seen in Chapter 7, the domain menu most selected from is Audiences, but it is also this menu that is most viewed without selection. It is interesting, therefore, to see firstly,

whether participants find the menus to be generally useful. For the later subcategories, relevant questionnaire responses are degree of restriction felt and relative ease or difficulty. Meanwhile, absence from the first two subcategories provides a clue to a particular kind of markup, whereby annotators regard the audience as intended rather than potential.

(A18.1) General and non-medical audiences

(A18.1.1) Remarking on or otherwise suggesting the general interest nature of the stories[9]

> b_{11} {n, U} Story 6, Clip 19.27 – 19.55 *"it's a human interest story* **[Remarking on the specific nature of the domain menus]** *but this is probably true of most stories though [laugh]"*

(A18.1.2) Identifying non-'medical professional' potential audiences[13]

> c_2 {d, V} Story 7 Clip 21.30 – 21.43 *"Well I think the audience here is um [laugh] patients everywhere desperately trying to be seen by a doctor"*

(A18.1) Data analysis

In terms of selection and choice, the most informative questionnaire rating is for menu utility. 82% of contributions were made by participants who rated the menus as at least Useful, and over a quarter of these were made by participants who rated them Very Useful. Taking into account the total number of participants that gave these ratings we still see that these contributions are more plentiful than those from participants who rated the menus as only Quite Useful.

This time, the highest number of contributions were made by participants assigned to story set is *b*. Might this be because one of these stories was socially inspired? Perhaps, although the other mixed set, *d,* generated very few contributions.

Table 9.32

General and non-medical audiences - Task Part Ranking (Menu Usefulness)

Very	Useful	Quite
5_6	13_{11}	4_7
(0.8)	(1.2)	(0.6)
22_{24}		

Table 9.33

General and non-medical audiences - Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	2	0	0	1	0	2	0	4	1	1	1	2	4	0	0	1	0	0	1	1	1	0	0
Incidents per set	3						9						7						3					
Total Incidents	22																							

(A18.2) The influence of Narrative style on selected Audience kinds

Because the task part instruction describes audience as being potential recipient groups it is interesting that some participants suggest either individuals or institutions. The purpose of this category is to see whether narrative style may be instrumental in participants' suggestions of alternative kinds of audiences. Also shown are participants' judgements regarding the relative ease or difficulty of the Audience attribute, and their judgements regarding restrictiveness.

(A18.2.1) Narrative style and the identification of an individual person as audience[4]

For some participants, first person narrations are compatible with audiences of one and may imply dialogue.

> **First-person**, d_3 {d, U} Story 4, Clip 30.35 – 30.58 "**[Creative and unusual input value types]** *To me, somebody who would be interested in this story would be like um a friend or a colleague, somebody the person cares for and that she wants to, I don't know, confide in or warn or sort of talk about general things on life with …*"

(A18.2.2) Narrative style and the identification of an institutional body as audience[8]

Narrative style appears less influential when the suggested audience is an institution.

> **Omniscient**, c_{16} {n, QU} Story 3, Clip 19.41 – 20.29 *"…funding bodies in general … 'government' for example … something like 'funding agency'* **[The term is applicable but its definition (general practice context) is not]** *"*

(A18.2) Data analysis

Not surprisingly, most contributions were made by participants who rated the task overall as relatively unrestricted. Taking into account the total number of participants making each respective rating we again see a different picture. The only participant to rate the task as Quite Restricted, made three contributions; every other rating has a far smaller per participant presence.

Table 9.35 shows that only 25% of participants in the study have shown evidence of being influenced by narrative style in their suggestions, and the least represented story set is *b*.

Table 9.34

The influence of Narrative style on selected Audience kinds – Task Ranking (Restriction)

VU	U	QU	QR	R	VR
0_1	8_{13}	1_8	3_1	0_1	0_0
(0)	(0.6)	(0.1)	(3.0)	(0)	(0)
9_{22}			3_3		
12_{24}					

Table 9.35

The influence of Narrative style on selected Audience kinds - Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	1	2	0	0	0	0
Incidents per set	4						1						4						3					
Total Incidents	12																							

(A18.3) Recognising potential Audiences in their Character suggestions[25]

For at least those participants who provide accompanying speech, this category is a specific

case of **evidently considering two or more (non-point) attributes simultaneously**.

> **Audience**, a_{20} {n, QD} Story 5, Clip 46.41 – 47.18 *"I was chasing that [Psychiatric Nurses] there you go ... Yeah that's good; I think all those people should be aware of that kind of story"*

(A18.3) Data analysis

Participants who recognise potential audiences in their character suggestions are very

variable in how they rate the indexing task part in terms of ease and difficulty. Per

participant, most contributions are from participants who rate indexing either Very Easy or Difficult, followed by Quite Difficult. The most underrepresented rating is Easy.

Certainly by now, a pattern is emerging that the most difficult story set is set *a*. Participants assigned to this set make more contributions than any other, and moreover, every participant so assigned is a contributor. Story set *c* participants provide the next largest presence with only one of their members not contributing. It may be that these more professional type stories are precisely the ones that cause annotators to refer to character suggestions when suggesting audiences and vice versa.

Table 9.36

Recognising potential Audiences in their Character suggestions – Task Part Ranking (Ease and Difficulty)

VE	E	QE	QD	D	VD
2_1	4_8	8_8	7_5	4_2	0_0
(2.0)	(0.5)	(1.0)	(1.4)	(2.0)	(0)
14_{17}			11_7		
25_{24}					

Table 9.37

Recognising potential Audiences in their Character suggestions - Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	1	2	2	2	3	3	2	0	0	1	0	0	1	1	0	1	2	2	0	0	0	0	1	1
Incidents per set	13						3						7						2					
Total Incidents	25																							

(A19) Menus

(A19.1) Domain menus

(A19.1.1) Remarking that the domain menus are the same$_1$

A possible reason why use of the character menus is relatively low is that, not only are they identical but they are on the same screen. The annotator when attending to a given character attribute, simply remembers the contents of a previously viewed menu rather than effectively viewing it again.

> **Character**, a_{13} {e, n, e U} Story 1, Clip 18.52 – 19.24 *"The lists are the same, right?* **[Understanding of the task part]***"*

(A19.1.2) Remarking on the specific nature of the domain menus$_{21}$

> **Discussion afterwards**, d_{23}, {Q} Clip 70.43 – 71.35 *"Yeah, I found those quite restricted though [...] probably because – I don't know um, it was all medical wasn't it"*

(A19.1.3) The term is applicable but its definition (general practice context) is not$_4$

Low use of the domain menus generally, as already suggested has to do with the terms being too specialist. A sought term might appear identical to a menu term but their connotations may well be different and so it would be inappropriate to select.

> **Audience**, c_{16} {n, Q} Story 3, Clip 19.34 – 20.29 *"... 'Fund Managers' ...I would rather write my own* **[Narrative style and the identification of an institutional body as audience]** *at least I know what it means […] Yeah because it doesn't provide kind of explanation; it might have different meaning…"*

(A19.1.4) General remark$_{12}$

> **Protagonist**, a_{17} {e, V} Story 1, Clip 09.50 – 10.18 *"A lot of choices!"*

(A19.1) Data analysis

Figure 9.17 shows that except for Related Reader, least contributions are made by the participant who rates the attribute concerned as 'easy' to annotate. It appears then, that participants have most to say about a domain menu whilst attending to an attribute they rate 'difficult' or do not rate because they regard it as neither difficult nor easy to suggest values for. It is the domain menu attaching to Audience that provokes most discussion; Antagonist provokes least. Not shown are those occasions where the annotator is not attending to any attribute in particular at the time but these are included in Part B of the associated technical report.

From the right hand side of the diagram, it can be seen that most contributions are made by participants who rate the menu facility as being generally Very Useful. Given this finding, it is a surprise that least contributions are made by those who rate the facility Useful.

Three quarters of participants make some remark or other in respect of the domain menus. Most vocal are those participants assigned to story set c, especially c_2 and c_{16}.

Figure 9.17

Domain menus – Attribute and Menu Utility Questionnaire Ranking
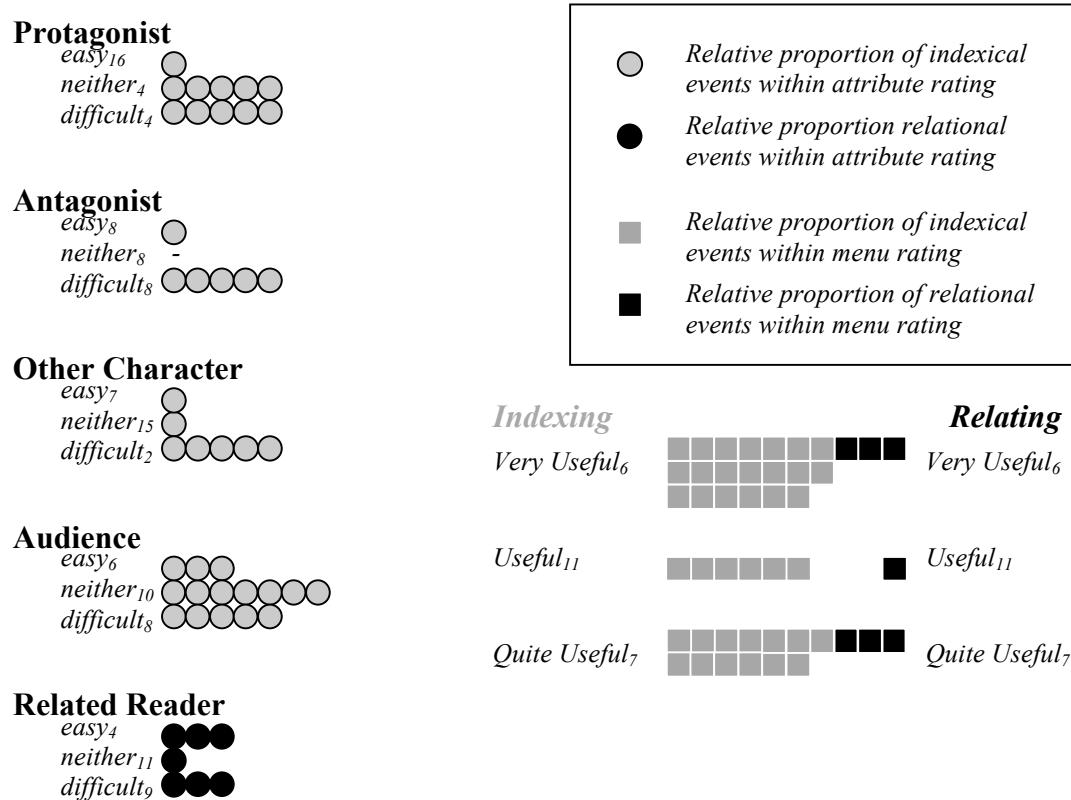
Table 9.38

Domain menus - Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	1	0	1	1	1	4	0	0	2	1	2	2	5	2	1	5	0	2	0	2	1	1	0	4
Incidents per set	8						7						15						8					
Total Incidents	38																							

(A19.2) Narratological menus

Just because they have precise literary senses doesn't stop people regarding these terms as more general purpose. Occasionally however a participant will comment on this difference because it affects what they are trying to do.

(A19.2.1) The term is applicable but its definition is not$_2$

> **Feature**, d_{23}, {n, Q} **Story 12**, Clip 35.40 – 36.17 *"***[Responding with humour]** *But I meant sort of in an ironic way so I can't really tick it [...] Well, no, no, you can't call it a tragedy ..."*

(A19.2.2) The definition is applicable but the term itself is not$_1$

> **Narrator**, c_{15} {n, Q} Story 3, Clip 11.00 – 11.35, *"I think this is a difficult one because I feel that Pharmacist is the narrator…and I feel that this is coming from their viewpoint…it's obviously based on their values and beliefs, but then I wouldn't say it was 'Unreliable'"*

(A19.2.3) General remark$_{10}$

Occurrences of this category are where menu, menu items or definitions are commented on but not necessarily in relation to the story.

> **Feature**, d_3 {n, V} Story 4, Clip 18.15 - 19.06 *"... Hmm would that be an allegory or a metaphor? Maybe an allegory ... Let's put 'allegory'"*

(A19.2) Data analysis

The narratalogical menus provoke fewer remarks than the domain ones, and no remarks are made by participants that rate the attached attribute 'difficult'. The largest proportion of incidents is where participants have rated the menu facility as generally Quite Useful; this

time, however, the Very Useful proportion is also relatively large. As was the case for domain menus, the smallest proportion of incidents is where participants have rated menus Useful.

Whereas three quarters of participants had something to say about the domain menus, only one third, a strict subset of the former, do so in respect of the narratalogical ones.

Figure 9.18

Narratological menus – Attribute and Manu Utility Questionnaire Ranking

Feature
easy$_9$
neither$_{10}$
difficult$_5$ -

Narrator
easy$_7$
neither$_{16}$
difficult$_1$

Relative proportion of indexical events within attribute rating

Relative proportion of indexical events within menu rating

Menus

Very Useful$_6$

Useful$_{11}$

Quite Useful$_7$
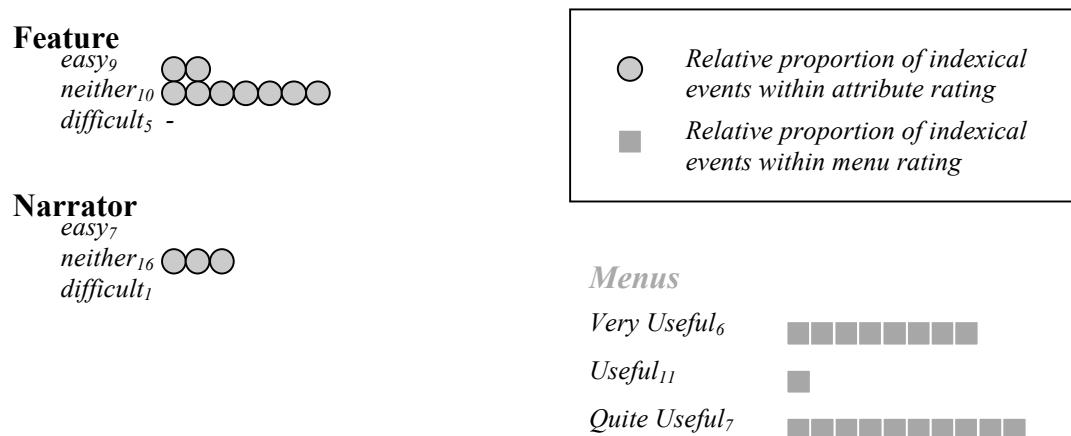
Table 9.39

Narratological menus - Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	0	0	1	0	1	1	0	0	0	0	0	0	2	0	1	1	0	0	0	1	0	0	0	5
Incidents per set	3						0						4						6					
Total Incidents	13																							

(A20) Nearest to hand suggestions

This category provides evidence of participants using a particular form of input in preference to another.

(A20.1) Selecting the editor's suggestion from a menu rather than agreeing directly[14]

In the case of narratological menus, a reason for selecting from them rather than agreeing directly is that they contain definitions. In other cases, the annotator may go to the menu first, perhaps because they don't want to be influenced by the editor's suggestions before they have had a chance to make their own. This is very evidently the strategy of Participant a_{17}, who always exhausts the menu before going to the editor's suggestions and then only to free text input as a last resort. Alongside each entry is the participant's judgment of the relative utility of the menus: **V**ery useful, **U**seful or **Q**uite useful.

> **Protagonist**, a_4 {n, Q} Story 5, Clip 26.03 – 26.10 *"It's the same; I didn't see that"*

(A20.2) Entering as free text a value that is semantically equivalent to a menu item, editor or previous reader suggestion[14]

Menu length may be one reason why the annotator will choose to type a value in preference to selecting it. They may also want to make their own suggestions before consulting those menus or the suggestions already made by the editor or previous readers. Alongside the entries are participants' responses regarding degree of restriction felt.

> **Antagonist**, c_{22} {d, QU} Story 11, Clip 47.44 - 48.11 *"Can I type it in [...] Yes I just missed it* [having scrolled past]*"*

(A20.3) Remarking on semantic equivalence of terms$_2$

> **Character**, c_{16} {e, e, n, QU} Story 3, Clip 15.32 – 15.43 *"***[Task part consolidation]** *'chemist' would be the same as 'pharmacist' so"*

(A20) Data analysis

The participant groups that are most active in this category are those assigned to story sets *a* and *c*; least activity occurs in respect of the mixed sets. This should not surprise since it is reasonable to suppose that the frequently encountered domain menus are more relevant for professional story markup and less relevant for more social or technological story types within that same professional domain.

Table 9.40

Nearest to hand suggestions - Story set membership

Story Set	*a*						*b*						*c*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	2	1	2	2	4	1	0	0	1	2	2	0	1	0	0	3	1	4	0	0	0	0	2	2
Incidents per set	12						5						9						4					
Total Incidents	30																							

(A21) Story relations

As well as indirect relations between stories via indexical attributes, there are others which explicitly relate one story to another and to the reader. It is still the annotation rather than annotators' responses to the stories generally that is our main concern. They are listed in story order, and in the case of story-story relations, by focal story within set.

(A21.1) Identification of story relationships

For this category, the questionnaire response that tells most is whether participants felt

restricted.

(A21.1.1) Identification of story relationship kinds$_1$

> **Related Story** (8), c_{15} {n, U} Story 7, Clip 40.45 – 41.02, *"...can things be related in terms of because I'm thinking - not necessarily by what they're about but the way that they're written?"*

(A21.1.2) Identification of multi-way story relationships$_{12}$

This is where the participant identifies complex relationships such as one-to-many and

chaining. They may also want to make explicit, the bi-directionality of a relationship.

same thing because I want to say the three are related..."

> **Related Story** (6 & 11), c_{16} {d, QU} Story 7, Clip 60.45 – 63.07 *"***[The Main Point as a memory aid]** *[...] It's almost counter arguments...It might even be a circle"*

(A21.1.3) Identification of genre relationships$_2$

> **Related Story** (1), d_1 {n, U} Story 12, Clip 51.12 – 51.46 *"***[Building on a theme]***"*

(A21.1.4) Identification of contrasting relationships$_8$

> **Related Story** (10), b_7 {d, VU} Story 6, Clip 53.40 - 54.56 *"They'll think I'm mad if I relate these two stories* [laughing] *I can see an antithesis relation rather than a relation you see, in the sense that* **[Employing verbal means to organise, clarify or get approval] [Immediacy and fluency]** *That's my relation; it's an odd relationship but one is the opposite of the other really; that's how I saw that"*

(A21.1.5) Identification of loose/weak/broad relationships[10]

> **Related Story** (9), a_5 {d, R} Story 5, Clip 94.58 – 96.44 *"*[**Weaving their own story as a means of relating two stories]** *but it's a weak relation"*

(A21.1) Data analysis

In terms of absolute number of events, the participant group that contributes most to this category is the one that contains most members. In terms of number of events per participant, however, one participant at least is highly active. Regardless, most activity occurs where participants rate the task overall as relatively unrestricted, and contribute on average, more than one event each. This is to be expected since the very identification of multi-way relationships requires an unrestricted exploratory approach to markup. However, that restraint might be felt later as they try to adequately record those multi-way relationships.

Because we are dealing with relations between stories, we always regard the trigger story to be the focal story, regardless of whether it actually is. According to Table 9.42, stories in the homogenous (professional) sets provide the majority of triggers.

Table 9.41

Identification of story relationships – Task Ranking (Restriction)

VU	U	QU	QR	R	VR
3_1	19_{13}	10_8	0_1	1_1	0_0
(3.0)	(1.5)	(1.3)	(0)	(1.0)	(0)
32_{22}			1_2		
33_{24}					

Table 9.42

Identification of story relationships - Story set membership

Story Set	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	2	1	0	0	4	3	3	0	1	1	1	0	0	1	6	3	0	1	2	2	0	1	0	1
Incidents per set	10						6						11						6					
Total Incidents	33																							

(A21.2) Responses when viewing the two stories related by subject (7 and 8)[13]

This category contains the video clips showing annotators' responses to viewing the only two stories originating from the same discussion thread: "Ortho stuff". Two arguments can be made: firstly, these stories are not regarded as any more related than any other pair; and this points to the next argument: a disadvantage of threaded discussion is that any stories contained are all but irretrievable because they are locked into subject headings that, as here, provide little clue as to content.

These incidents are described slightly differently in order to show the various possibilities. Just viewing the pair without relating them is indicated by ($\neg$7) or ($\neg$8) depending on which is focal, not viewing the pair is indicated by ($\neg$) and pairs that are related are shown in the usual way. Just over half of the pairs were viewed and only a quarter were related. Because participant a_{12} chose to annotate Story 8 in addition, there are altogether thirteen entries. It is this entry that we reproduce below as it shows the most typical of behaviours: the annotator chooses not to view Story 7 alongside Story 8 which is focal.

Related Story ($\neg$), Story 8, a_{12}, Clip 72.40 – 73.12 *"***[The unrelated focal story]***"*

(A21.3) Weaving their own story as a means of relating two stories[4]

With only twelve stories in the collection and with no guidance as to what constitutes a relation, participants in tackling this task part can be quite creative and will create a story in order to account for a vague or possible relation. As well an on the one hand providing a reason for difficulty formulating suggestions, this category captures what participants say which is often different to what they write.

> **Related Story** (1), Story 10, a_{20} {n, QE} Clip 103.58 – 104.58 *"Yeah, this guy; yeah, he'd love that idea … just use computers; I'll sit at home [laughter] [types] 'Advance technology so we can do away with doctors'. Hold on! She's saying what's she saying? Yeah … I think it deserves a question mark"*

(A22) Remarking on Related Reader

As well as readers explicitly relating themselves to the lower story, there are on occasion, instances where they relate themselves to the upper story in an indirect way, after having explained a relationship between the upper and the lower story. Quite often it is the lower story that provides a trigger for the upper one, even when the trigger story is no longer in view and has been replaced with another one. We learn then that readers when relating to a particular story are influenced by the surrounding stories, whether visible or not. Indeed, these might even be enabling devices for reader relations. Another interesting finding is that participants' verbal explanations are often far more personalised and often quite different to what they put into text form. Shown alongside the incidents are participants' ratings of relative ease and difficulty of the task part.

(A22.1) Remarking that a particular story *does* relate to them as reader$_{24}$

Inclusion in this category requires the participant to express verbally, their relatedness to a story. Other indicators of reader relatedness are mostly collected under **Story engagement or involvement** and **Telling verbally, their own story in response**.

> **Relate**, d_3 {e, d, E} Story 6, Clip 99.00 – 99.14 *"**[Responding with empathy, compassion or pity]** okay yeah, that relates with me because I've intoxicated animals in the past, without you know, knowing it"*

(A22.2) Remarking that a particular story does not relate to them as reader$_{16}$

Inclusion in this category requires the participant to express verbally, their non-relatedness to a story.

> **Related Reader**, b_{24} {n, E} Story 2, Clip 47.00 – 47.32 *"**[Directing attention to an attribute]** I cannot for the simple reason that I have never worked in the remote areas so [...] I mean yes, this is a GP's job I quite agree; if err somebody who is working in say an island in Scotland, it applies to him. I have never done that sort of jobs, so it doesn't relate to me [...]"*

(A22.3) Remarking that a particular story might relate to them as reader$_{12}$

This category collects incidents where the participant expresses verbally, that they only might relate to a story. There are a number of reasons why they might find such distancing easier than relating personally. Some participants regard the Related Reader as the *intended* reader and having decided who that is, will then decide whether they could cast themselves in that role. The menu attaching to this attribute can itself stifle suggestion because all the roles are professional ones and this can give the impression that the participant is only permitted to relate in a medical professional way. On the other hand, some participants find this easier than relating in personal or general interest ways.

> **Related Reader**, b_{18} {d, QE} Story 2, Clip 51.35 – 52.16 *"The only way I really relate to that is from a professional type side of things [...] I mean, the only way I*

can, not in a professional way, would be you know, as a parent or something - if any of those things ... happened to ... my family or my children then I did [...]"

(A22.4) Other behaviours indicating reader relatedness to any story[12]

This category arises from the finding that participants will often demonstrate their relatedness to a story at times other than when concentrating on the Related Reader task part. Moreover, when actually concentrating on the task part they may not even consider committing to text what they spontaneously provide verbally. It is as if the two are distinct: they will verbally relate in a direct way but will commit to text in an abstract way. A very rare incident, and the first shown here, is where a participant spontaneously enters a Related Reader suggestion as a story Point. The mediator intervenes and it is replaced. Curiously, when this participant later encounters Related Reader in the context of this story, they choose not to make this now very fitting suggestion. In fact they experience difficulty with the Related Reader attribute at first. By this time they have distanced themselves from the story in the way described above and are now more concerned with trying to imagine themselves as the intended reader.

> **Relate**, b_{11} {n, n, QE} Story 4, Clip 40.22 – 41.17 *"[**Handling unconventional input types]** The reason I understand that is it's about life; life's choices, so"*

(A22) Data analysis

Table 9.43 shows for each focal story all expressions of relatedness, whether explicit or implicit; it also shows explicit expressions of non-relatedness. An additional row in the table allows us to see where participants have made such expressions for stories that are not in their own set. The size of the 'Explicit Does *Not*' may indicate that annotators would want to record their non-relatedness. The category 'Implicit Does', which though largely

comprising expressions regarding relatedness to stories from other sets, serves as a warning that some annotators may need to be coaxed to record reader relatedness. Of all the stories in the collection it is Story 7 that annotators relate to most. This is followed by Story 3, also from set *c*. Stories in sets *a* and *d* trigger least expressions of reader relatedness.

The difference between the data in Figure 9.19 and the categories themselves provided in Part B of the associated technical report is that the category data gives ratings for the attribute and task part currently under consideration whilst Figure 9.19 gives the specific ratings for the Related Reader attribute and Relating task part. There is little difference whether contributing participants rate the task part as relatively easy or relatively difficult. Most noticeable is the relative proportion of explicit expressions of relatedness by participants who rate the attribute 'easy' to suggest values for. The relative proportion of explicit 'Might be' relatedness by participants who rate the attribute 'difficult' to suggest values for is also quite high.
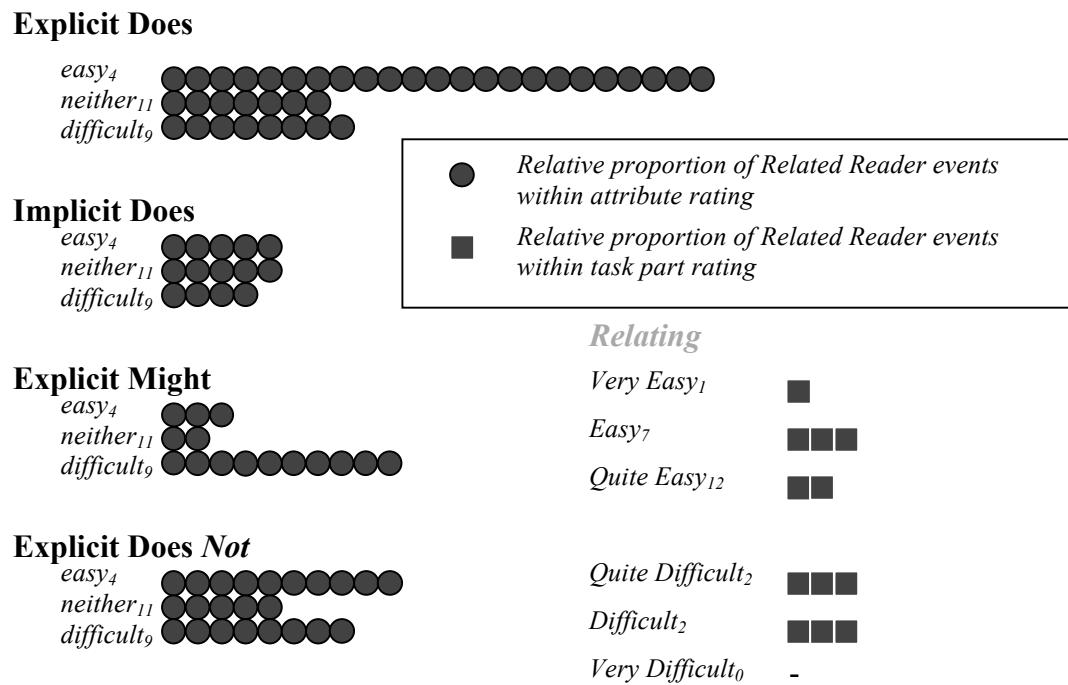
Table 9.43

Remarking on Related Reader – Expressing Relatedness

Story	Explicit Does	Implicit Does	Explicit Might	**Total Relatedness**	Explicit Does *Not*
1	1	1	1	**3**	2
5	0	0	0	**0**	2
9	1	0	1	**2**	0
2	1	0	1	**2**	1
6	3	0	1	**4**	1
10	3	1	1	**5**	0
3	4	1	2	**7**	1
7	4	2	2	**8**	0
11	2	1	2	**5**	2
4	1	0	1	**2**	0
8	1	0	0	**1**	1
12	1	0	0	**1**	2
From other set	2	6	0	**8**	4
Total	24	12	12	**48**	16

Figure 9.19

Remarking on Related Reader – Attribute and Task Part Questionnaire Rating

Explicit Does

easy₄
neither₁₁
difficult₉

Implicit Does

easy₄
neither₁₁
difficult₉

Explicit Might

easy₄
neither₁₁
difficult₉

Explicit Does *Not*

easy₄
neither₁₁
difficult₉

Relative proportion of Related Reader events within attribute rating

Relative proportion of Related Reader events within task part rating

Relating

Very Easy₁

Easy₇

Quite Easy₁₂

Quite Difficult₂

Difficult₂

Very Difficult₀

(A23) The identification of story-story relations

In the absence of guidance either from the editor or previous readers, participants are asked first whether one story relates to another and next how. This category concentrates on just the first of these: whether or not the focal story relates to any non-focal story.

Figure 9.21, which owing to its size is divided into two adjacent sections, shows for each participant which story pairs are viewed, the relative number of views and whether a relation results. Views are represented by crosses where each cross represents a single view. A tick represents an explained relation. Each focal story occupies a row in its section and each non-focal story occupies a column. The columns are grouped into story sets so that *a* and *b* occupy the left section of the table and *c* and *d* occupy the right section. A given focal story can be related only once to each of the eleven non-focal stories, hence it can be related a

maximum of eleven times. Cells marked by dash are impossible views. Empty cells therefore, represent non-views. Figure 9.20 below provides as a guide, an annotated sample taken from Figure 9.21. Notice that the cells comprising the leftmost story column in each section are never empty. This is because Story 1 as non-focal displays automatically when the screen is entered. A participant's relative activity can be deduced from the density of crosses per cell, the ratio of empty cells to non-empty cells and the ratio of ticks to crosses. Clustering patterns reveal for example whether participants tend to select non-focal stories from their own set that they are most familiar with or will explore the collection. Also they provide visual support for the category **The Main Point as a memory aid**; this is where a participant's activity reveals mainly empty or ticked cells and very few crosses. To the left of each section, the focal story numbers are ordered according to the order in which a participant selects them from the main screen. Clustering patterns having to do with the sequence in which these focal stories are selected may thus be discernible. It can be seen for example that for many participants, the number of viewings of a given non-focal story does not reduce as the task progresses. It appears that for these participants, the aspectual nature of the stories demands that they be seen afresh for each potential relation.

Figure 9.20

Guide to interpreting Figure 9.21

Figure 9.21

The identification of story-story relations

Symbol	Meaning	Symbol	Meaning
x	Single view of potential story pair	xx..	Multiple views of potential story pair
√	Relation explained	x.. √	Relation explained on subsequent viewing
—	Impossible Relation		Potential Relation not viewed
blue	Session 1 participant (health care)	**black**	Session 2 participant (knowledge media)

Left table

		1	5	9	2	6	10	3	7	11	4	8	12
a4	1	—	√		xx			x	x	xxx			√
D	5	x	—					√					
e	9	x		—				√				√	
a5	1	—	xx	x	x	x	x	xx	x	x	√	√	x
QD	5	x	—	√	x	x	x	x	x	x	x	x	x
d	9	x	x	—	x	x	x	x	x	x	x	x	√
a12	1	—	x		x		√						√
QE	5	x	—		x			x		√			
n	9	x		—	√								
	8	x			x							—	
a13	1	—			x								√
E	5	x	—			√	x			√			
n	9	x		—				√			x		
a17	1	—		√									
QE	5	x	—	√		x√					x		
n	9	√	√	—									√
a20	9	x√	x√	—	√	√	x√	xxxx	√	xxx	√	xxx	x√
QE	5	√	—	x√	xx	xxx	xx	√	√	√	xx	x	√
n	1	—	xx	xxx	xx	xx	√	xx	xx	xx	xx	xx	√
b7	2	x		√	—		√				x	x	x
E	6	x	x	x	x	—	√	x	x	x	x	x	
d	10	√	x		x	x	—	x	√		x		
b9	2	x	x	x	—	x	x√	√	xx	x	√	x	x
QE	6	x	x	xx	x	—	xx	x	xx	√	x	xx	x
n	10	x	x	x	x	xx	—	x	√	x	x	x	x
b11	10	x				√	—			√			
QE	2	x		√	—			√		√			
n	6	x				—				x			
b14	2	x		√	—								
QE	6	xx				—				√			
n	10	x					—		√				
b18	2	x		√	—					x			
QE	6	x				—		x√		x√			
e	10	√		x			—		√	√			x
b24	2	x			—								
E	6	x				—							
n	10	x			x√		—			x			
		1	5	9	2	6	10	3	7	11	4	8	12

Right table

		1	5	9	2	6	10	3	7	11	4	8	12
c2	7	x						√		—			
D	3	x								—			
n	11	x	√					√		—			
c6	3	x	x	x x		xx	xx	—	xx	√		√	x
QD	7	x	xx	x	√	xx	x	x	—	x	x√	x	x
n	11	√	√	x	x	x	x	x	√	—	x	xx	x
c15	3	x						—	√	√		√	
QE	7	xx√	xxx	x	x	xx	x	x√	—	x	√	√	x
n	11	xx	x	x	xx	√	x	x√	x	—	√	x	x√
c16	3	x	√	√				—		√		x	
QE	7	x	x		√	√	√		—	√		√	
d	11	√	x		√					—	√		√
c21	3	x						—			√		
E	7	x	√	√					—		√		
n	11	√			√					—			
c22	3	x	x	x	x	x	x	—	x	x	x	x	x
QE	7	√	x	x	x	x	x	x	—	x	x	x	x
e	11	√	√	x	x	xx	√	x	xx	—	xx	x	x
d1	4	xx			x			x		—			
QE	8	x		√								—	
n	12	√	x	√									—
d3	4	√	x	√	x	x	x	x	x	x	—	x	x
E	8	x	x	xx	x	x	√	√	x	x	x	—	x
d	12	√	x	xx	xx	x	xx	√	x	x	x	x	—
d8	8	√				x							
QE	4	x									—	√	
n	12	√											—
d10	8	x			√								—
VE	12	x						√	√				—
e	4										—		
d19	4	x	x	x	√	x	√	x	x	x	—		
E	8	x	x	xx	√	x	√	√	x			—	
n	12	√	x	x	√	x	x		x	x			—
d23	4	x		√							—		
E	8	x		x	√		√		√			—	
d	12	x	x					√					—
		1	5	9	2	6	10	3	7	11	4	8	12

(A23.1) Expressions on the absence of story-story relations

Over the following two subcategories, an incident will be recorded as a clip only if the participant provides more than just a negative response to the absence of relations.

Apart from the absences themselves, the category also captures participants' responses to the default juxtaposition of two stories. If they don't regard them as related, their paired presence may cause them to question whether their understanding of the task part is correct.

(A23.1.1) The unrelated focal story[9]

It is comparatively rare for the participant to be unable to relate the focal story to any non-focal story.

> **Related Story**, c_2 {n, D} Story 3, Clip 44.12 – 44.35 *"... Now then I've decided that – I had a look at it and I decided that I didn't really think that there was anything – still don't think so, There's not really anything that relates directly to this"*

(A23.1.2) The unrelated non-focal story[35]

An incident is recorded under this category regardless of whether the participant is referring specifically to the non-focal story currently on view, shown in brackets, or to stories previously viewed also.

> **Related Story** (7), a_{20} {n, QE} Story 1, Clip 103.14 – 103.46 *"Mm. How does it relate? Yeah. It doesn't unfortunately"*

(A23.2) The presence of story-story relations$_{136}$

Inclusion in this category requires some kind of signal, verbal or otherwise, of a relation between the focal story X and the non-focal story Y regardless of whether an explained relation results. It is of course not possible to know the precise point at which recognition occurs but by giving the sequence in which screen objects are attended to, the category does at least show a range of possibilities. The point at which attention evidently turns to X and Y as the next potential story pair marks the start of the sequence. The number of times this pair has been viewed with X as focal and Y as non-focal is given, disregarding any previous viewing of Y, where X was not the focal story. Because it is the recognition process that is important, most sequences end when the discovery is announced either verbally or by the activation of the button *Related?* Co-occurring incidents after this point are therefore very rarely shown.
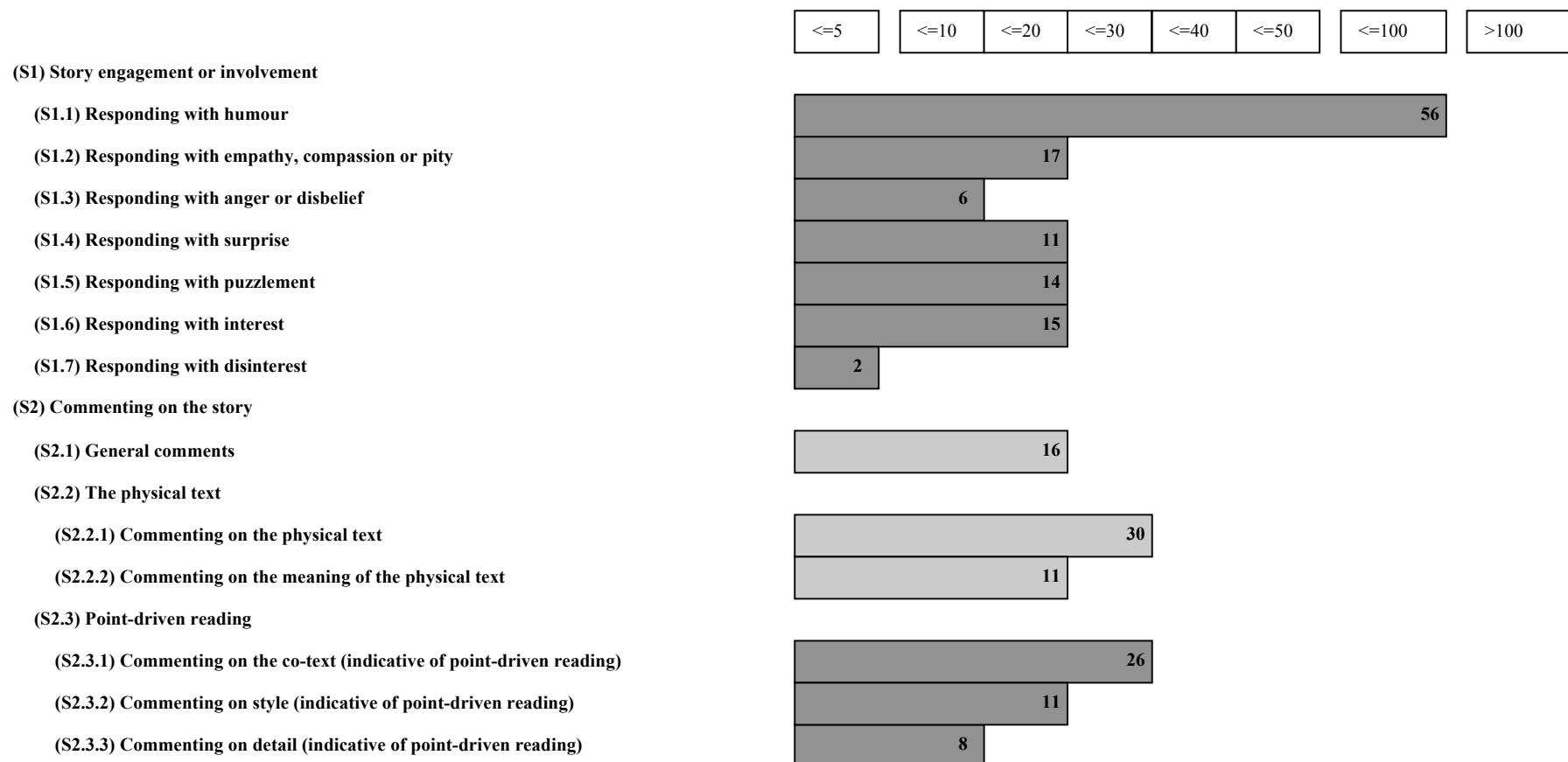
> **Related Story** (6), Story 11, c_{22} {e, QU} Clip 80.12 – 80.17 *"[1st view] Yes, I could relate those two too [...]"*
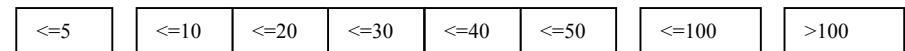
9.1.2 - Story categories (S)

The difference between story categories and annotation categories is that the former are responses to the stories themselves rather than the annotation of those stories. As for the annotation categories, we show just one example from each here; the remainder are given in Part B of the associated technical report. Table 9.44 shows that fewer categories emerged for stories than for annotation and that there are fewer incidents too.

Table 9.44

Frequency of story incident within category structure

<=5		<=10	<=20	<=30	<=40	<=50		<=100		>100

(S1) Story engagement or involvement

(S1.1) Responding with humour — 56

(S1.2) Responding with empathy, compassion or pity — 17

(S1.3) Responding with anger or disbelief — 6

(S1.4) Responding with surprise — 11

(S1.5) Responding with puzzlement — 14

(S1.6) Responding with interest — 15

(S1.7) Responding with disinterest — 2

(S2) Commenting on the story

(S2.1) General comments — 16

(S2.2) The physical text

(S2.2.1) Commenting on the physical text — 30

(S2.2.2) Commenting on the meaning of the physical text — 11

(S2.3) Point-driven reading

(S2.3.1) Commenting on the co-text (indicative of point-driven reading) — 26

(S2.3.2) Commenting on style (indicative of point-driven reading) — 11

(S2.3.3) Commenting on detail (indicative of point-driven reading) — 8

| <=5 | | <=10 | <=20 | <=30 | <=40 | <=50 | | <=100 | | >100 |

(S2.4) Telling a story in response

    (S2.4.1) Telling verbally, their own story in response   23

    (S2.4.2) Creating scenario type stories in response   4

(S2.5) Alternative ways of referring to the text and its communicability   6

(S3) Saliency

    (S3.1) Title and Main Point saliency

    (S3.1.1) Attracted by the story's title   5

    (S3.1.2) The Main Point as a memory aid   38

    (S3.2) The list position as a memory aid   2

    (S3.3) Title function of Main points   10

    (S3.4) First Character suggestion   4

    (S3.5) Recall

    (S3.5.1) Recall of a previous story   4

    (S3.5.2) Recall of the stories from a previous study   10

468
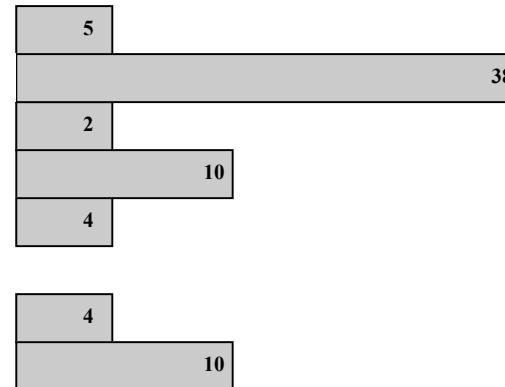
(S1) Story engagement or involvement

Since every story is seen by every participant, the collection of observed responses provides an indicator of story type. These have been brought together in Table 9.45 which clearly shows the greatest response to be humour, and the most humorous stories to be 7 and 8. Stories 2, 4 and 6 generate very mixed responses, and story 9 hardly anything. The story text does not provide the only trigger; occasionally it will be the annotator's consideration of a particular attribute or attribute value. There is never a suggestion that the texts are anything other than stories even though it will be seen later that participants occasionally use **Alternative ways of referring to the text and its communicability**. This means that Gabriel's criteria (see Section 4.5 of Chapter 4) do indeed provide sufficiency even for texts that have been removed from their origin of telling. In the table, a cell increment indicates that a participant has responded to the text in one of seven ways at least once during the task. However, the categories show that a participant may respond to a given story in a number of different ways.

Table 9.45

Participants' responses and the suggestion of story type*

Story	Humour	Pity	Anger	Surprise	Puzzle	Interest	Disinterest	Totals
1	3	0	0	0	4	0	0	**7**
5	6	1	0	0	0	2	0	**9**
9	0	1	0	0	1	0	0	**2**
2	2	2	0	2	0	5	0	**11**
6	6	3	1	1	1	0	0	**12**
10	1	0	0	0	0	3	0	**4**
3	5	2	1	1	1	0	0	**10**
7	14	0	1	2	0	0	0	**17**
11	0	3	0	2	2	2	0	**9**
4	2	1	0	0	4	1	1	**9**
8	8	2	1	1	1	1	1	**15**
12	4	0	1	0	1	0	0	**6**
	51	**15**	**5**	**9**	**15**	**14**	**2**	**111**

* Quantities shown here are less than those shown in the recordings categories which include repeat responses of the same type from the same participant.

(S1.1) Responding with humour$_{56}$

One reason why this category is so much larger than the others is because the humorous response whether actual or apparent is more visible than other kinds; it is difficult to tell whether it signals that the participant regards the story as purely funny or whether they regard it in other ways too. To qualify for inclusion in this category, the participant will either laugh or produce an unmistakable snigger. However, the latter being a weaker signal may be accompanied or followed by another signal that if stronger may put the incident in another category altogether. Just occasionally a story will elicit a number of different responses but equally strong, in which case they will qualify for inclusion in more than one category.

> **Story 8**, *d₃*, Point, Clip 36.32 – 36.49 *"...It's so funny* **[Telling verbally, their own story in response]***"*

(S1.2) Responding with empathy, compassion or pity[17]

In this second Aristotelian response, which often occurs in tandem with humour, the reader will identify with story characters (identities protected) who they regard as deserving better.

> **Story 9**, a_{20}, Point, Clip 107.57 – 108.20 *"... He's a nice guy John [...] I do know John actually; he's in Stony Stratford, he's a GP like me, he knows the score. He likes his job - he loves it. But he's a bit tentative about the future – I don't blame him. He's worried about his own position and his reasonable sort of living"*

(S1.3) Responding with anger or disbelief[6]

This response is like an extension of the empathic one: the reader becomes so involved in the story that they express anger or shock.

> **Story 7**, c_{21}, Points, Clip 56.23 – 56.42 *"[**"For me it's X" or similar]** There's two things ...: someone has just got a cynical view of triage and 2: there's a gross misunderstanding of what triage is aimed to be"*

(S1.4) Responding with surprise[11]

This response is quite similar to the one above except that the reader's expression is more one of enjoyment.

> **Story 11**, c_{16}, Other Character, Clip 28.18 – 28.33 *"That's probably even more ... surprising ... because these are quite serious injuries and not even sent to hospital..."*

(S1.5) Responding with puzzlement[14]

Whereas the previous four responses were to the story per se, this category collects incidents where the participant is puzzled by aspects such as narrative style or point. If the participant is questioning then it can indicate interest on some level.

> **Story 4**, b_7, Related Story, Clip 47.12 – 47.25 *"I never really understood that story when I read it before; yes, I never really got to understand that story, even when I read it"*

(S1.6) Responding with interest$_{15}$

This is where something in or about the story captures reader interest rather than stirs emotion.

> **Story 5**, a_4, Main Point, Clip 20.53 – 21.43 *"***["What does editor's suggested attribute value mean?"]** *Yeah, yeah […] classify […] you can't treat a human being as an entity…so they want to put human conditions in terms of computer, which is not possible obviously"*

(S1.7) Responding with disinterest$_2$

Not responding in one of the above ways doesn't necessarily mean that the reader is disinterested, and the category **Did you find the stories interesting?** suggests that some participants just choose not to display their thoughts and feelings at the time. However, one probable indication of disinterest, not in the story itself but its title, is where during Phase 2, they skip over it. The signal is reinforced when for two stories the interval between mouse clicks is just three seconds. It is highly likely that in this case, the reader is expressing immediate disinterest.

> **Story 4**, b_{24}, Read, Clip 39.29 – 39.33 *" "*

(S2) Commenting on the story

(S2.1) General comments$_{16}$

This category contains the various kinds of comments participants made in response to particular stories. Although all of these comments are indicative of story engagement the responses are vague, mixed or muted and so classification is difficult.

> **Story 8**, c_6, Read, Clip 49.10 – 49.22 *"That's true, unfortunately"*

(S2.2) The physical text

(S2.2.1) Commenting on the physical text$_{30}$

Sometimes reader engagement is blocked not by the story per se, nor even the style which they may find puzzling but by the physical text which is difficult to penetrate in places. Then again, parts of the physical text are commented on as providing imagery or clues as to what the story is about.

> **Story 11**, c_{22}, Feature, Clip 42.05 – 42.50 *"...Those 'query fit' and 'query fall' they were strong images – so that would be alright wouldn't it? [...] And it was the 'unwitnessed' that I feel is important [...] It says 'unwitnessed in the night' [...] Yes because how do you know how he did it and one's just made a big assumption really."*

(S2.2.2) Commenting on the meaning of the physical text$_{11}$

Whereas the annotation category **what does it mean?** collects queries regarding single words and simple expressions, this category is concerned with the meaning of blocks of text. Occasionally, the mediator will be asked by the annotator to help make sense of the piece. On other occasions participants will derive their own meanings.

> **Story 2**, Read, d_3, Clip 74.03 – 74.27 *"[Responding with surprise] Do they hang people still? [...] As usual I give the less unlikely interpretation [laughing]"*

(S2.2) Data analysis

All incidents recorded within Section 9.1.2 of this chapter can be generated at any time during task, including the Reading phase. This section is less concerned with annotation and more concerned with participants' interaction with the stories themselves. Like all similar tables in this section, therefore, Table 9.46 just shows which participants and participant groups raised the incidents, regardless of what they were doing at the time. Table 9.47 shows which stories are commented on and how frequently. In our ranking of story complexity, Story 1 ranked

most complex; this story has generated, by far, the greatest number of incidents regarding the physical text. The pattern is not continued however, and it is the median range, not the simple range that has generated least incidents. Some participants are more concerned with the physical text than others and this can give the appearance of inter-group differences; often, however, it is the same participants that contribute each time.

Table 9.46

The physical text - Participant group membership

Participant group	a						b						c						d					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	1	9	3	0	0	8	0	0	0	0	0	2	1	2	0	4	1	1	0	6	0	0	0	3
Incidents per group	21						2						9						9					
Total Incidents	41																							

Table 9.47

The physical text - Story complexity

	Complex				Median				Simple			
Story	1	8	9	4 S	2	**5**	**7**	10	12 T	3	6 S	11
Complexity	8.3	7.4	7.3	6.5	5.7	**5.5**	**5.2**	4.7	4.3	4.2	3.3	2.8
Incidence	8	4	3	4	5	**1**	**2**	0	2	5	3	4
Totals	19				8				14			

(S2.3) Point-driven reading

(S2.3.1) Commenting on the co-text (indicative of point-driven reading)[26]

Story interpretation it is argued necessitates reaching outside the physical text. As this category shows, it will often involve the reader constructing the text, and in the case of Related Story, combining two texts via embellishment.

> **Story 9**, a_{20}, Other Character, Clip 55.17 – 57.55 *"Other characters involved – I mean, a lot actually – Oh the 'Silent majority'; now what was she relating that to ... she was saying 'are happy'; yeah, so most of us get on with the job [...] but that could include the Shipman like character you see ...***[Creating scenario type stories in response]***"*

(S2.3.2) Commenting on style (indicative of point-driven reading)[11]

Other clues may be found in the story's stylistic properties.

> **Story 11**, c_{16}, Relate [revisited], Clip 78.13 – 78.56 *"...interestingly written...in a fairly light way..."*

(S2.3.3) Commenting on detail (indicative of point-driven reading)[8]

This category provides evidence of the reader regarding as relevant, a small part of the physical text that other readers may disregard.

> **Story 9**, a_{12}, Related Story, Clip 74.32 – 75.31 *"***[Commenting on the co-text]*** Thing is, probably the whole idea of 'seeing different generations growing' probably makes me feel like okay this guy has been there for thirty years and you can only be at the same place for such a long time if you are in the countryside – I think [...]"*

(S2.3) Data analysis

Table 9.48 again shows certain participants contribute far more than others and there is once more very little activity within Group *b*. Also, Table 9.49 has a similar shape to Table 9.47 indicating that attending to the physical text may itself be a point driven behaviour.

Table 9.48

Point-driven reading – Participant group membership

Participant group	a						b						c						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	0	0	6	0	0	11	1	0	0	0	0	0	3	1	0	7	1	1	0	8	0	1	0	5
Incidents per group	17						1						13						14					
Total Incidents	45																							

Table 9.49

Point-driven reading - Story complexity

	Complex				Median				Simple			
Story	1	8	9	4 S	2	**5**	**7**	10	12 T	3	6 S	11
Complexity	8.3	7.4	7.3	6.5	5.7	**5.5**	**5.2**	4.7	4.3	4.2	3.3	2.8
Incidence	8	5	4	8	4	**0**	**1**	3	1	4	0	7
Totals	25				8				12			

(S2.4) Telling a story in response

(S2.4.1) Telling verbally, their own story in response[23]

One of the difficulties of story elicitation, it is said, is that people want to tell their stories in a natural storytelling setting where there can be face to face contact with an audience over which they have control. Ordinarily, that control would be lost if they were to commit them to technology. On the other hand, it has also been said (e.g. Schank) that people will naturally respond to a story with a story of their own. Given that stories, as differentiated from impersonal accounts, are triggered by other stories, it is of course necessary for the potential story teller to be able to relate on some personal level to what they are reading, and it is this

that the related reader attribute is designed to discover. In Chapter 7 it was shown how, even given the limitations of the related reader input field, this tendency could be discerned in readers' responses. Beyond that, people often tell stories, different again from the ones they commit to text. It is these verbal stories that this category is concerned with, including those narrated after task completion. It certainly appears that people will tell stories provided that the design of story elicitation technologies not merely facilitates but encourages them to do so.

> **Story 7**, c_{16}, Relate [revisited], Clip 74.50 – 75.21 *"... yeah, I know that happens…because that was exactly my position…difficulty breathing ... were immediately there, but I said 'well, I didn't feel anything' so I didn't get the same treatment. Doesn't matter that the person was there just measuring probably my blood pressure. So it is true in a way – it's quite interesting"*

(S2.4.2) Creating scenario type stories in response[4]

The difference between this category and the previous one is that although still drawing on their own knowledge, values and beliefs, they are not first person narratives.

> **Story 9**, a_{20}, Other Character, Clip 58.43 – 59.16 *"And so in the same context, what you do, you put the proposal of management plan to the patient and you say 'well actually I think' – it's usually the patient who is anxious, very anxious or claustrophobic or ... has got obsessive compulsive type symptoms, will often not make a decision for you anyway because they're helpless you know so you have to be a little bit doctor-patient, so they'll always listen to you. If you pose the plan in 'this is the best thing for you', what are they going to do? They're going to take the tablet! ..."*

(S2.4) Data analysis

Firstly, this category provides proof that stories, even those read from print, are generators of new story creations which are here told verbally.   Of the two kinds of stories we found, the scenario type is comparatively rare and occurs only during indexical annotation. First hand account stories appear most during indexing but also quite frequently during relational

annotation. That so few stories are told anywhere else, including the reading phase, where they might have been expected, strongly suggests that the activity of annotation certainly helps.

Table 9.50

Telling a story in response

Task Part	Frequency Own story	Frequency Scenario type	Frequency Totals
Indexical Annotation	11	4	15
Read	2	0	2
Relational Annotation	7	0	7
Other	3	0	3
Frequency Totals	23	4	27

(S2.5) Alternative ways of referring to the text and its communicability[6]

This category just collects references to the story text or to the communication of the text which suggest that the annotator may regard the discourse type or mode differently. Beyond offering clues as to their annotation behaviours, the category is uninteresting and so if the same participant subsequently makes a similar reference, it is not recorded.

> **Point**, d_{19}, Story 4, Clip 17.05 – 17.53 *"I'm to read the **article** and pick a point in the **article**?* **[Can I say what I want? I.e. how free is free input allowed to be?]***"*

(S3) Saliency

This category collects incidents which suggest that certain dimensions of a story appear particularly salient. The study having been designed in accordance with the model has meant that the Main Point is constantly visible regardless of whether it is the story or the story collection that is the current focus. It is to be expected therefore, that most indicators of saliency have to do with this attribute.

(S3.1) Title and Main Point saliency

(S3.1.1) Attracted by the story's title$_5$

According to the model, the primary function of the main point is to provoke interest and arouse curiosity; it thereby offers the first means of selection from a collection. This category provides an indication of whether participants are attracted in this way.

> **Story 11**, c_{16}, Main [Phase 1], Clip 20.41 – 20.45 *"Okay, let's try this one* [selecting out of sequence] *- sounds exciting"*

(S3.1.2) The Main Point as a memory aid$_{38}$

This category contains incidents of participants evidently drawing on the story titles for recall, whether on trigger words or the title as a whole. They are ordered by task part.

Included are those incidents where the participant is able to recall the story text just by reading the story's title.

> **Discussion afterwards**, d_1, Clip 60.50 – 61.18 *"But I found that even if I didn't agree with the Main Point of the stories that I didn't edit myself - some I did, some I didn't, as could be expected - but I found in the next exercise, in the relating, it was easy to know what the story was about, you didn't really need to read it again, you just knew which it was; it was a good memory aid"*

(S3.1) Data analysis

If we allow that catchy, memorable titles (S3.1.1) assist story recall (S3.1.2) then, according to Table 9.51, the main point of Story 3 is most effective in this regard, closely followed by the main points of Stories 10 and 11. There is a negative correlation, be it slight, between story complexity and recall potential: the stories tending towards the complex end of the spectrum are less readily recalled by their main points.

Table 9.51

Title and Main Point saliency – Ordered by story complexity

	Complex				**Median**				Simple			
Story	1	8	9	4 S	2	**5**	**7**	10	12 T	3	6 S	11
Complexity	8.3	7.4	7.3	6.5	5.7	**5.5**	**5.2**	4.7	4.3	4.2	3.3	2.8
Incidence	2	4	3	3	4	**3**	**3**	5	4	6	2	5
Totals	12				15				17			
	44											

(S3.2) The list position as a memory aid₂

For some participants the story can be identified by its relative position in the list.

> **Related Story** (2), a_5, Story 1, Clip 82.49 – 83.05 *"[...] This [1] is the ... Ah the first story that I read [...] And this [2] is, how many, what is ... Ah the first story and the second okay* **[How do I?]***"*

(S3.3) Title function of Main points₁₀

On a mundane level, this category shows participants recognising story titles. It also reveals

the surprising fact that participants rarely explicitly acknowledge that the title and main point

are one and the same. On the other hand, it might be so obvious to them that they don't think

it worth commenting on.

> **Phase 1**, Story 9, a_{12}, Other Points, Clip 31.07 – 31.45 *"With the fact that you have to write things which might potentially be titles here probably makes it a bit more, well not difficult, but you have to pay more attention to what you would select"*

(S3.4) First Character suggestion₄

Only rarely are *Characters* attended to in a different order to which they appear on the screen,

i.e. *Protagonist* first. On such occasions it could mean that the protagonist is less salient. On

the other hand it could just mean that it is more difficult to suggest values for; also recorded

therefore, are participants' ease and difficulty ratings for the three character attributes:
Protagonist, *Antagonist* and *Other Character* respectively.

> **Antagonist**, b_{24} {n, e, n, E} Story 10, Clip 35.43 – 36.12 *" "*

(S3.5) Recall

(S3.5.1) Recall of a previous story$_4$

This category contains incidents of participants finding memorable some aspect of a
previously viewed story.

> **Read**, d_3, Story 11, Clip 91.08 – 91.14 *"... Some are funny; like the Italian one was funny"*

(S3.5.2) Recall of the stories from a previous study$_{10}$

A subset of the stories (1, 2, 3 and 4) were used in a preliminary annotation experiment a year
or so before the present one. At that time participants were presented with a booklet on the
one hand and an instruction sheet on the other; the stories were printed on separate pages of
the booklet, interleaved with forms for their annotation.

Everyone that took part in the previous study recognised at least one of the four stories; the
most memorable story was 2. Because this category is a little different, where the participant
is viewing a story's text at the time of recognition, the video clip will extend the duration of
that viewing.
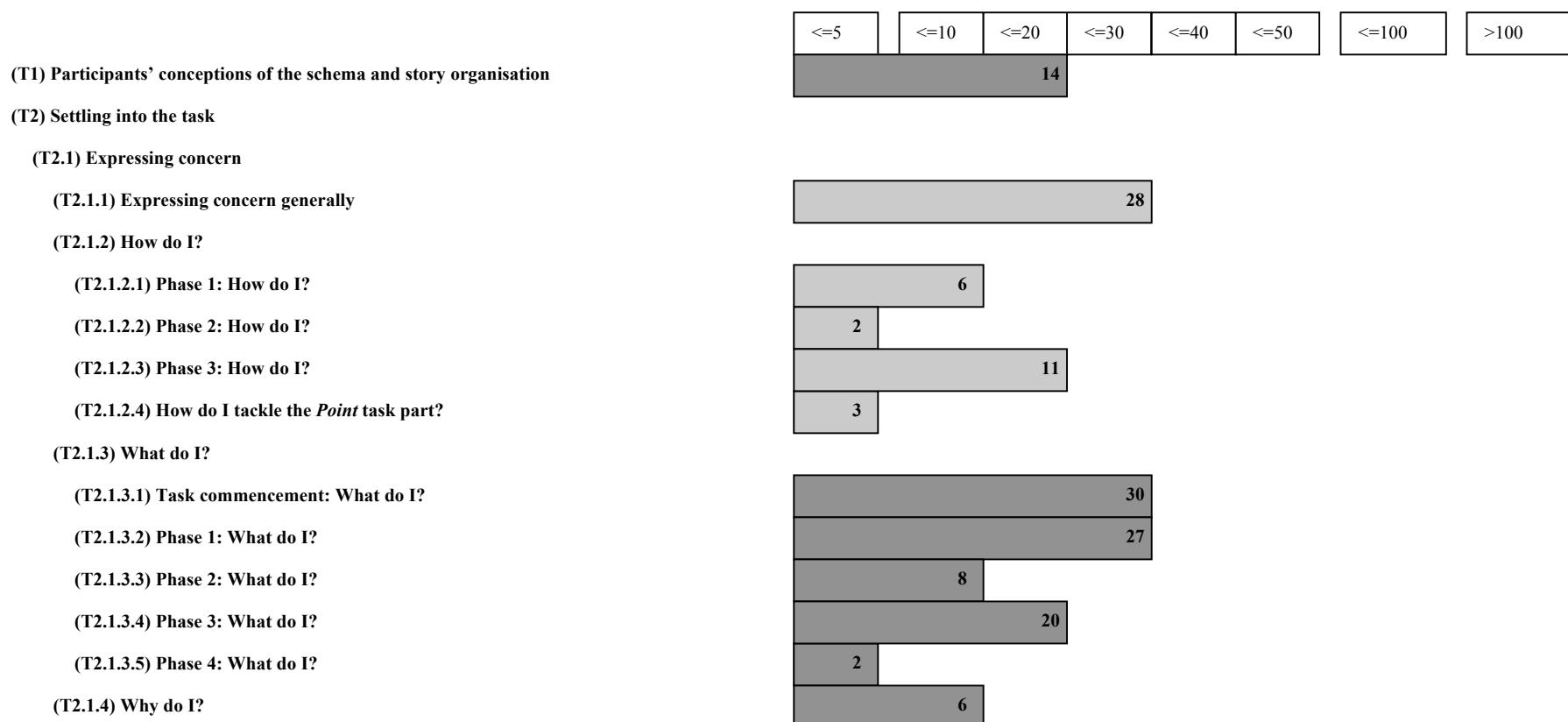
> **Story 2**, c_{15}, Read, Clip 27.05 – 28.35 *"I've got a feeling I've read this one before [...] I do remember it though; I remember this one"*

9.1.3 - Task categories (T)

This category captures those behaviours that apply more generally to the task process and includes things volunteered by the participants about their work. It is organised in a fairly logical way beginning with participants' conceptual models and ending with general comments about themselves, the task and the model. The intervening categories show confidence levels gradually rising as participants settle into the task. They also reveal participants engaging in consolidation of task parts. Navigations that deviate from the forward path are then given, followed by categories concerning optional task parts and facilities. Finally, there are a range of questions the mediator may ask. Like the annotation categories, the task categories have a fairly embedded structure; this with incident frequency is shown in Table 9.52 below.

Table 9.52
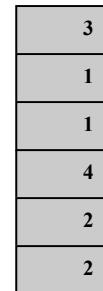
Frequency of task incident within category structure

	<=5	<=10	<=20	<=30	<=40	<=50	<=100	>100

(T1) Participants' conceptions of the schema and story organisation — 14

(T2) Settling into the task

(T2.1) Expressing concern

(T2.1.1) Expressing concern generally — 28

(T2.1.2) How do I?

(T2.1.2.1) Phase 1: How do I? — 6

(T2.1.2.2) Phase 2: How do I? — 2

(T2.1.2.3) Phase 3: How do I? — 11

(T2.1.2.4) How do I tackle the *Point* task part? — 3

(T2.1.3) What do I?

(T2.1.3.1) Task commencement: What do I? — 30

(T2.1.3.2) Phase 1: What do I? — 27

(T2.1.3.3) Phase 2: What do I? — 8

(T2.1.3.4) Phase 3: What do I? — 20

(T2.1.3.5) Phase 4: What do I? — 2

(T2.1.4) Why do I? — 6

<=5		<=10	<=20	<=30	<=40	<=50		<=100		>100

(T2.1.5) Forgetting

(T2.1.5.1) task part instructions — 3

(T2.1.5.2) task parts — 1

(T2.1.5.3) words and context — 1

(T2.1.5.4) Phase 1 stories — 4

(T2.1.5.5) Phase 2 stories — 2

(T2.1.5.6) suggestions — 2
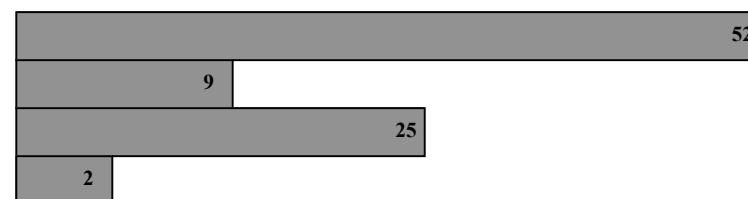
(T2.2) Showing their understanding of the task or task part

(T2.2.1) Understanding of the task — 2

(T2.2.2) Understanding of the task part

(T2.2.2.1) Understanding of Phase 1 — 52

(T2.2.2.2) Understanding of Phase 2 — 9

(T2.2.2.3) Understanding of Phase 3 — 25

(T2.2.2.4) Understanding of Phase 4 — 2

(T2.3) Expressing confidence
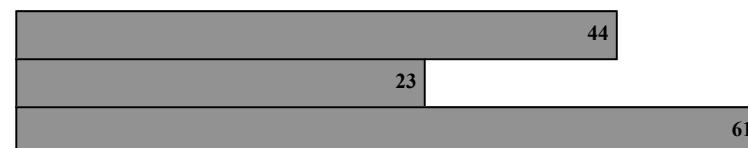
(T2.3.1) Expressing confidence generally — 22

(T2.3.2) Showing enjoyment of the task — 12

(T3) Task part consolidation

(T3.1) Attending to the output list — 44

(T3.2) Attending to the story — 23

(T3.3) Other indicators of consolidation — 61

<=5		<=10	<=20	<=30	<=40	<=50		<=100		>100

(T4) Navigation

(T4.1) Can I come back?

(T4.1.1) Request to suspend indexing the current screen — 1

(T4.1.2) Request to suspend relating the current story — 3

(T4.1.3) …to the guide if I need to — 4

(T4.2) Can I go back?

(T4.2.1) Requesting to return to view previously saved phase 1 indexing — 1

(T4.2.2) Requesting to return to view previously saved phase 3 relating — 2

(T4.2.3) Requesting to return to view previously saved phase 4 indexing — 1

(T4.3) Moving away from or requesting to move away from the current screen in order to gain understanding of a task part or the task as a whole — 17

(T4.4) Indicating that they would like to move away from the current screen in order to do something they feel they ought to be able to do at this point — 19

(T5) Previous readers' suggestions

(T5.1) Accessing a list — 19

(T5.2) Selecting from a list — 6

(T5.3) Commenting on a list item or the list generally — 12
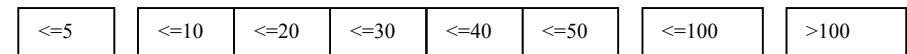
(T6) Phase 4 indexing

(T6.1) Declining to enter phase 4 — 14

(T6.2) Entering phase 4 — 12

| <=5 | | <=10 | <=20 | <=30 | <=40 | <=50 | | <=100 | | >100 |

(T7) Mediator is curious to know
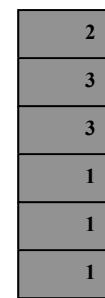
(T7.1) "Why did you do that?"

(T7.1.1) - not relate yourself as reader — 4

(T7.1.2) – not use the menus

(T7.1.2.1) – not use the narrative Features menu — 2

(T7.1.2.2) – not use the menus generally — 3

(T7.1.3) - not view previous reader's suggestions — 3

(T7.1.4) – enter Phase 4 — 1

(T7.1.5) "find so many relationships between stories" — 1

(T7.1.6) "find relating easier than indexing" — 1

(T7.2) "What are you thinking?" — 15

(T7.3) "Did you find the stories interesting?" — 7

(T7.4) "Did you deliberately skip stories 4 and 8 because they didn't interest you?" — 1

(T7.5) "Can you imagine a resource of this kind?" — 2

(T8) Commenting on the model or contextual implementation — 22

(T9) Commenting on the task — 110

(T10) Talking about themselves — 9

(T1) Participants' conceptions of the schema and story organisation[14]

Just occasionally participants approach the task with their own conceptual models of how a collection of stories might be organised. Whilst this can be useful for understanding people's expectations, their models can be in conflict with the task which requires them, as far as they are able given its phased structure, to interact with the stories in a way the medium is proven to invite. That includes gaining a perspective view of the story's point by identifying with its characters or its narrator. It also includes an expression of how the story relates to them and so on. In other words, people's intuitions regarding the stories and their attributes are more helpful to the study than their opinions as to their physical access and organisation.

On the other hand, participants' conceptual models are important in as much as they may account for certain patterns of between-screen movement discovered in the previous chapter and also some of the annotation strategies described above. Participant a_{12} in particular reveals a number of conceptual models based on certain assumptions about what markup might actually entail.

> **Point**, Story 9, a_{12}, Clip 38.42 – 39.45 *"…the thing is that since you have the Features in the middle; if you have [Characters] before, because then you would only put what you haven't inserted yet [...] I mean Features to me appears like the big bag where you just throw in only things you cannot particularise"*

(T2) Settling into the task

Category membership here requires participants to verbally express their concern or confidence regarding the task or task part. Signals that aren't included, for the obvious reason that they cannot be recorded, are facial expressions or postures. Also not included are those behaviours captured by other categories. The purpose of the present category is to pick up less tangible behaviours not accommodated elsewhere and which too affect the data. People

who are uneasy tend to explore least, worry about correctness and rather than engaging in the stories regard them formally. As confidence increases they may begin asking questions, not so much about the definitions of terms, which can be a sign of unease, but about what they are permitted to do. They may then want to express their own opinion, and realising that they can, will feel in control of the task. This generally encourages them to be more exploratory, to use free input where they mightn't have before and even, in some cases, to construct.

Incidents here are ordered by task part. Although not evident in the data for the reasons given above, there are three places in particular where the participant will signal concern or confidence. The first is immediately after annotating the first story during Phase 1. At this point, participants who have spent a long time already may, on return to the Main screen worry that they need to repeat the process twice more. Other participants regard annotation of the first story as a trial run and they feel confident and equipped to do the remaining stories. The next point at which participants tend to signal discomfort is at the beginning of Phase 2 where they are faced with the list of titles they are expected to read through. Even though they are advised not to spend long on this screen because there will be opportunity to see all the stories again during Phase 3, most participants do spend a long time and can get quite immersed in the stories and therefore show signs of relaxing once more. The final point is entry to Phase 3. Because of the way it is described in the guide, it is often feared. Again almost without exception and often contrary to what participants record on the questionnaire, they seem more confident during this phase even given that they are totally on their own, there being no example editor suggestions.

(T2.1) Expressing concern

(T2.1.1) Expressing concern generally$_{28}$

This category collects incidents of participants expressing mild concern about the task. About one third of these occur whilst reading the Guide at the very beginning; there appears to be a lot to remember and the Related Reader task part looks complicated. About one half of incidents occur during Phase 1 where participants again show concern with remembering and also now, about their own performance: are they too slow; are they doing it right? The remainder of the incidents have to do with slow performance, their understanding of story content and the open-ended nature of Phase 3.

> **Phase 1**, Story 2, Point, b_{18}, Clip 16.05 – 16.17 *"It's like one of those things I'm going to be asked to remember as much of it as possible aren't I [laughing]?"*

(T2.1.2) How do I?

This category contains incidents where participants' understanding of a task part is incomplete and so they specifically request help either to understand, recover from or do something. These queries go beyond wanting to know the function or operation of single screen objects. They want to know how to effectively read the screen around those objects in order to understand better what they and their states represent.

(T2.1.2.1) Phase 1: How do I?$_6$

> **Point**, d_{19}, Story 4, Clip 12.24 – 13.18 *"So I'm supposed to index this now. How do I index it? [...]"*

(T2.1.2.2) Phase 2: How do I?$_2$

> **Phase 2**, c_{15}, Story 1, Clip 26.26 – 26.46 *"[...] So what do I need to do now? [...]"*

(T2.1.2.3) Phase 3: How do I?$_{11}$

> **Phase 3**, a_5, Story 1, Clip 82.41 – 84.25 *"[**The list position as a memory aid**] Sorry, the first step with this; what is my first step in this err screen? [...]"*

(T2.1.2.4) How do I tackle the *Point* task part?$_3$

This subcategory also extends the annotation category **What does it mean?** It collects incidents where the participant shows an awareness of the potential ambiguity of the story *Point* task part. The *Point* attribute can be understood as the story's motivating force or to a viewpoint regardless of any story. The reader may agree that the statement drives the story yet disagree with what it says, or they may agree with the statement as a view but not consider it sufficiently motivating.

> **Main Point**, c_{22}, Story 7, Clip 21.55 – 22.26 *"So I can totally* **[Strong disagreement with]** *disagree with this one or am I analysing the fact that he says that* [editor's suggestion] *in the narrative and that's the main point? [...] Disagree, is that alright? [...] Yes, am I seeing it ... from mine"*

(T2.1.2) Data analysis

Almost all 'How do I?' incidents occur during the first and the third phases of the task. In Phase 1 the question ceases to be asked beyond the Feature attribute and is most usually asked in relation to the Main Point attribute. In Phase 3, both attributes: Related Reader and Related Story trigger about the same number of incidents. Occasionally, it is the task part (screen) more generally that the participant requires help with. According to Table 9.55 which is based on Figure 8.2 in Chapter 8 above, the screens we ranked as most simple are those with which participants do not require help. There again, the screen we ranked most complex in terms of number of returns to the text triggers only one 'How do I?'

Table 9.53

How do I? – Attribute or Task Part and Phase

	Phase 1	**Phase 2**	**Phase 3**	**Phase 4**
Point	2	-	0	0
Main Point	5	-	0	0
Other Point	1	-	0	0
Feature	1	-	0	0
Read	-	2	-	-
Relate	-	-	2	-
Related Reader	-	-	5	-
Related Story	-	-	4	-
Totals	9	2	11	0
Total	22			

Table 9.54

How do I? - Participant group membership

Participant group	*a*						*B*						*C*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	0	4	1	1	0	1	0	0	0	0	0	2	0	1	3	1	2	2	0	3	0	0	1	0
Incidents per group	7						2						9						4					
Total Incidents	22																							

Table 9.55

How do I? –Task Part complexity*

	Complex		**Median**	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	1	11	**8**	0	0
Totals	12		**8**		0
	20				

*Includes only those incidents that occur on an annotation task part.

(T2.1.3) What do I?

This category contains incidents where participants indicate that they are a little unsure of what is expected of them. They may just require reassurance regarding task procedure, their progression through the task or may need assistance with a particular screen object.

(T2.1.3.1) Task commencement: What do I?$_{30}$

Entry screen, b_{14}, Clip 00.53 – 01.04 *"[...] Do I need any special skills ...? [...]"*

(T2.1.3.2) Phase 1: What do I?$_{27}$

Main, c_{21}, Clip 13.41 – 14.22 *"[...] So I've got to look at those [3, 7 & 11] have I?"*

(T2.1.3.3) Phase 2: What do I?$_8$

Read, Story 1, b_9, Clip 30.00 – 30.28 *"[...] Just read them ...? [...]"*

(T2.1.3.4) Phase 3: What do I?$_{20}$

Main, b_{24}, Clip 45.14 – 45.34 *"So what am I doing now? [...]"*

(T2.1.3.5) Phase 4: What do I?$_2$

Main Point, a_{17}, Story 1, Clip 60.27 – 60.37 *"So we just leave that [free text input] in place do we; we don't actually have to tick anything [...]"*

(T2.1.3) Data analysis

The question 'What do I?' applies more broadly than 'How do I?' and this is reflected in Table 9.56. The question is most often asked at the beginning of the task, before even Phase 1 is entered. Phase 1 itself generates a similarly high level of enquiries but as before, in the case of 'How do I', these are largely concentrated on the Point screen. During Phase 3 the question is most often asked in relation to the Related Story attribute but also occurs frequently on the main screen. The reading phase too triggers quite a number of enquiries. In terms of participant group activity, group *c* is hardly represented in Table 9.54 and is very highly represented in Table 9.57. Except for the additional activity on the Narrator & Audience screen from participants querying 'Save now?' Table 9.58 has a similar shape to Table 9.55.

Table 9.56

What do I? – Attribute or Task Part and Phase

	Commencement	Phase 1	Phase 2	Phase 3	Phase 4
Prior to entry	1	-	-	-	-
Entry screen	11	-	-	-	-
Guide	4	0	0	0	0
Main screen	14	2	1	6	0
Point	-	9	-	-	0
Main Point	-	5	-	-	1
Other Point	-	4	-	-	0
Feature	-	2	-	-	0
Audience	-	2	-	-	0
Save now?	-	3	-	0	1
Read	-	-	7	-	-
Relate	-	-	-	2	-
Related Reader	-	-	-	4	-
Related Story	-	-	-	8	-
Totals	30	27	8	20	2
Total	87				

Table 9.57

What do I? – Participant group membership

Participant group	a						B						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	5	4	2	12	2	1	3	3	7	3	4	9	0	4	4	2	5	3	3	5	0	3	1	2
Incidents per group	26						29						18						14					
Total Incidents	87																							

Table 9.58

What do I? –Task Part complexity*

	Complex		**Median**	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	2	14	**19**	0	6
Totals	16		**19**		6
	41				

*Includes only those incidents that occur on an annotation task part.

(T2.1.4) Why do I?[6]

This category collects incidents where participants query the purpose of a facility or the function of a screen object.

> **Related Story** (2), Story 1, a_{12}, Clip 67.52 – 68.03 *"... why is this story [2] presented to me; just because it's the first one in the list?"*

(T2.1.5) Forgetting

This category captures those few incidents where participants make known their forgetting.

(T2.1.5.1) task part instructions$_3$

> **Questionnaire**, c_{22}, Clip 87.30 – 89.00 *"I didn't use some of them [attributes] did I [...] And some one didn't change did one ... got that right? [...] And the 'Features', was that um the emotional thingy? [...]"*

(T2.1.5.2) task parts$_1$

> **Discussion afterwards**, d_8, Clip 42.08 – 42.35 *"***["Why did you do that?" - not relate yourself as reader]** *I think that I forgot, just forgot [Related Reader]"*

(T2.1.5.3) words and context$_1$

> **Story 11**, c_{21}, Phase 1, Clip 80.56 – 81.29 *"Oh Post Mortem, right; wondered whether Prime Minister [...] Initially ... when I read the first list I thought, well yeah, it's Post Mortem, but just suddenly seeing it this time"*

(T2.1.5.4) Phase 1 stories$_4$

> **Story 3**, c_6, Phase 3, Clip 58.26 – 58.46 *"Wait a second; what's this [focal] story? It's like a new one [...]"*

(T2.1.5.5) Phase 2 stories$_2$

> **Phase 2/3**, a_5, Clip 82.19 – 82.41 *"... but I don't remember very well the stories [...]"*

(T2.1.5.6) suggestions$_2$

> **Story 12**, d_3, Phase 1, Clip 60.58 – 61.09 *"Oh God, I had a point in mind* **[Responding with anger or disbelief]***"*

(T2.2) Showing their understanding of the task or task part

This category shows participants talking in a knowledgeable way about the task or task part. They may do this in a preparatory way, whilst on the Main screen or visiting the Guide, during the task part itself or afterwards. Comments that are made in a semi-enquiring way provide the mediator with an opportunity to step in and explain something. It may be that the participant just wants to check that their understanding is correct. On the other hand, it also reveals where task instructions are lacking or unclear and also, participants' expectations regarding a task part. Inclusion in this category requires that any exchange between the participant and the mediator is initiated by the participant. I.e. it shows them actively engaging in the task. Whether they are receiving navigational assistance doesn't matter, it is their understanding of the task per se that is important. According to this category, a common annotation strategy is the spontaneous approach.

(T2.2.1) Understanding of the task$_2$

> **Main**, a_{12}, Clip 01.13 – 01.29 *"Okay, so an editor has already indexed them, so what I'm going to do is in addition to professional editor or at least to someone else [...]"*

(T2.2.2) Understanding of the task part

(T2.2.2.1) Understanding of Phase 1$_{52}$

> **Guide 1**, d_{10}, Clip 03.38 – 03.58 *"... just so that I can sort of clarify what I'm going to be doing, I assume that there's three stories that have been indexed and you want me to have a look at what's already been input there, but to edit it or to just put my own [...] view?"*

(T2.2.2.2) Understanding of Phase 2$_9$

>**Main**, [Phase 1/2], c_{16}, Clip 39.39 – 40.03 *"Okay, so now I'm supposed to read any other stories and relate them to – to the three I did before. Okay, so 'Read now?' basically moves me to next stage yeah?"*

(T2.2.2.3) Understanding of Phase 3$_{25}$

>**Relate**, Story 1, a_{17}, Clip 40.24 – 40.55 *"[...] Right I see; so looking for connections either to yourself or um to the other stories, right umm"*

(T2.2.2.4) Understanding of Phase 4$_2$

>**Guide 1**, d_3, Clip 05.20 – 05.34 *"Oh okay, so supposedly that might change the way I look at them"*

(T2.2) Data analysis

Table 9.59 shows participants providing a great deal of evidence of their understanding of Phase 1. Most usually, this evidence is from comments they make on the Main screen or the Point and Feature screens; beyond the Feature screen fewer comments are made. There is less evidence of Phase 3 understanding; it is seldom found prior to entering the Relate screen and never within the Guide. By contrast, participants make evident their understanding of Phase 2 beforehand: either within the Guide or whilst on the Main screen. It is not surprising that, overall, most understanding occurs on the Main screen; firstly participants make many returns to it, and secondly, it serves as a task part boundary.

It is quite usual to see participant groups: b and c in opposing positions. This time the least vocal group is b and the most vocal is c. However, on closer inspection all members of group b display their understanding at least somewhere during the task but some of group c remains silent. But what might that silence mean? It may mean that the participant who understands

the task part just chooses not to announce the fact. This would explain why in Table 9.61, most announcements are made in connection with task parts we placed towards the complex end of the spectrum and least announcements are made in connection with those we ranked as more simple.

Table 9.59

Showing their understanding of the task or task part – Attribute or Task Part and Phase

Understanding → *Navigational point at which understanding detected ↓*	**Task generally**	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**	Total
Guide 1	0	1	4	0	1	**6**
Guide 2	0	1	0	0	0	**1**
Main screen	2	12	4	5	0	**23**
Point	0	5	0	0	0	**5**
Main Point	0	9	0	0	0	**9**
Other Point	0	2	0	0	0	**2**
Feature	0	13	0	0	1	**14**
Character	0	4	0	0	0	**4**
Narrator	0	2	0	0	0	**2**
Audience	0	2	0	0	0	**2**
Save now	0	1	0	0	0	**1**
Read	0	0	1	0	0	**1**
Relate	0	0	0	5	0	**5**
Related Reader	0	0	0	8	0	**8**
Related Story	0	0	0	6	0	**6**
Discussion afterwards	0	0	0	1	0	**1**
Total	**2**	**52**	**9**	**25**	**2**	**90**

Table 9.60

Showing their understanding of the task or task part – Participant group membership

Participant group	a						B						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	6	2	6	3	2	5	3	1	3	4	1	2	5	2	0	18	7	0	0	9	0	7	1	3
Incidents per group	24						14						32						20					
Total Incidents	90																							

Table 9.61

Showing their understanding of the task or task? –Task Part complexity*

	Complex		**Median**	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	14	19	**16**	4	5
Totals	33		**16**		9
	58				

*Includes only those incidents that occur on an annotation task part.

(T2.3) Expressing confidence

(T2.3.1) Expressing confidence generally[22]

Confidence is expressed in various specific ways, e.g. in expressions of **Ease**, **Strong agreement with**, **Strong disagreement with** and so on but they don't always record well in such places. This category therefore contains just those incidents where the participant somehow announces it; actions on their own don't qualify. Some participants demonstrate confidence more readily than others and for these participants only the more obvious announcements are reproduced here. The order of incidents shows confidence increasing with task progression. Participants who choose to enter their own suggestions in the form of free text appear far more confident than those that choose not to. This explains why confidence levels increase during Phase 1 and also why announcements of confidence occur mostly during Phase 1. In Phase 3 participants who may have avoided inputting free text beforehand now have no alternative and as a result, confidence levels increase. However, it is rarely announced and so is under represented here.

> **Phase 3**, Story 6, b_7, Clip 51.59 – 52.13 *"So that's that one [Save now] next story [6] [laugh] ... Right - okay, I'm getting the hang of this now…"*

(T2.3.2) Showing enjoyment of the task$_{12}$

It is of course impossible to capture participants' general attitude towards the task and so all this category provides is the occasional glimpse at the more obvious signs of enjoyment which are themselves often indicators of **Expressing confidence**.

> **Phase 1**, Story 8 (optional), Points, a_{12}, Clip 45.22 – 45.31 *"Okay, let's go* **[Attracted by the story's title]** *Yeah, for the fun of it"*

(T2.3) Data analysis

When it comes to expressing confidence, there is very little difference between participant groups. Nor does it appear to matter whether the story being considered at the time is simple or complex, except to say that Stories 9 (relatively complex) and 10 (on the simple side of the median) do not trigger expressions of this sort. In fact, the only notable unevenness found is from a task part (screen) perspective: not one participant expresses confidence when working on the Feature task part (recall that this attribute has its own dedicated screen). This is the screen we ranked most complex because it is where there are most returns to the story text.

Table 9.62

Expressing confidence – Participant group membership

Participant group	a						B						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	2	1	3	0	1	3	2	1	0	2	0	1	2	3	0	3	2	0	3	2	0	1	1	1
Incidents per group	10						6						10						8					
Total Incidents	34																							

Table 9.63

Expressing confidence - Story complexity*

	Complex				Median				Simple			
Story	1	8	9	4 S	2	**5**	**7**	10	12 T	3	6 S	11
Complexity	8.3	7.4	7.3	6.5	5.7	**5.5**	**5.2**	4.7	4.3	4.2	3.3	2.8
Incidence	3	2	0	1	2	**3**	**1**	0	1	3	2	1
Totals	6				6				7			
	19											

 *Includes only those incidents where a particular story is being considered.

Table 9.64

Expressing confidence –Task Part complexity*

	Complex		Median	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	0	5	**6**	3	3
Totals	5		**6**	6	
	17				

*Includes only those incidents that occur on an annotation task part.

(T3) Task part consolidation

Task part consolidation is where the participant appears to stand back from their input and view it now as a collection. It can be detected during Phases 1 and 3 where typically, the participant will move as if to leave the screen but will stop before doing so. It is also in evidence during Phase 4 where the participant glances over the screen before deciding whether to make minor adjustments to their indexing. Since it is the standing back that constitutes consolidation, the change itself is unimportant. However, radical or random

change may signal something quite different to consolidation - abandonment or disregard of previous suggestions.

(T3.1) Attending to the output list$_{44}$

Scrolling the list gives a clear signal that the participant is considering whether they have completed the task part. Depending on the number of suggestions however, the list may not be scrollable and so other clues to task part consolidation are where the mouse moves over the list in purposeful or lingering manner. Whether participants actually decide to make changes as a result of these actions is not important.

> **Phase 1**, Feature, Story 11, c_2, Clip 28.36 – 29.09 *"Right, so I've got all of these; now am I actually happy with all of these* **[Change of mind regarding an attribute value (having moved away from, then returns)]** *[scroll and repair]"*

(T3.2) Attending to the story$_{23}$

This is where the annotator plans to move on to the next screen but before doing so makes a return visit to the story to check that they have completed the task part.

> **Phase 1**, Character, Story 3, c_{16}, Clip 15.32 – 15.43 *"I think there are no more people there are there* **[Commenting on the physical text]***"*

(T3.3) Other indicators of consolidation$_{61}$

In the absence of such manoeuvres, remarks such as 'I'm happy with that' before moving on to the next task part are a good indication that this strategy is being used.

> **Phase 4**, Feature, Story 8, d_1, Clip 57.56 – 58.02 *"I think I've pretty much done; I was pretty much okay with these I think"*

(T3) Data analysis

Most task part consolidation occurs during Phase 4 even though not every participant enters this phase. A reason for this seeming anomaly is that Phase 4 is itself a consolidating phase. Very little consolidation occurs during Phase 3, partly because there is only one screen. Most consolidation occurs on the Feature screen; this does not really come as a surprise given that participants generally make many suggestions here and will also make frequent returns to the text. High levels of consolidation can also be found on the Point and Character screens. In fact, apart from the Relate task part, Table 9.67 shows a positive correlation between task part complexity and consolidating behaviour.

In every participant group there is at least one very active individual. Complete inactivity is quite rare (13% of participants). Given the number of opportunities (phase, task part and attribute) for displaying consolidating behaviour, we can regard as 'low activity', just one or two actions (29%). Between three and six actions can be regarded as 'medium activity' (33%). Most of the remainder (21%) would fall in the 'very high activity' with ten or more actions.

Table 9.65

Task part consolidation – Attribute or Task Part and Phase

Phase → *Attribute or Task Part↓*	**Phase 1**	**Phase 3**	**Phase 4**	Total
Point	7	-	12	**19**
Main Point	1	-	0	**1**
Other Point	3	-	8	**11**
Feature	20	-	17	**37**
Character	6	-	13	**19**
Protagonist	0	-	1	**1**
Antagonist	1	-	1	**2**
Other Character	8	-	0	**8**
Narrator & Audience	0	-	3	**3**
Narrator	1	-	7	**8**
Audience	8	-	3	**11**
Relate	-	3	-	**3**
Related Reader	-	1	-	**1**
Related Story	-	4	-	**4**
Total	**55**	**8**	**65**	**128**

Table 9.66

Task part consolidation – Participant group membership

Participant group	*a*						*b*						*C*						*d*					
Participant	*4*	*5*	*12*	*13*	*17*	*20*	*7*	*9*	*11*	*14*	*18*	*24*	*2*	*6*	*15*	*16*	*21*	*22*	*1*	*3*	*8*	*10*	*19*	*23*
Incident/s	2	0	18	6	9	4	1	1	3	16	6	2	6	0	0	12	1	4	4	14	2	1	6	10
Incidents per group	39						29						23						37					
Total Incidents	128																							

Table 9.67

Task part consolidation –Task Part complexity

	Complex		Median	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	37	8	**31**	30	22
Totals	45		**31**	52	
	128				

(T4) Navigation

The purpose of this category is to discover whether participants are inclined to annotate stories in a sequential way, story by story and attribute by attribute, or whether they are inclined to be more random. Not a great deal can be learned about potential annotation behaviours because in order to ensure that participants completed the task, their movements were restricted: the phases had to be followed and completed in chronological order. Also, to ensure that participants were relatively spontaneous in there suggestions for relating stories, Phase 3 annotations, unlike Phase 1 annotations, could not be revisited. However, once within an annotation phase, participants were given relative freedom to move among the screens until they decided to save their annotations for a given story, at which time their annotations for that story would be made inaccessible. The surprise was that annotators usually did follow the prescribed course and usually did choose to 'save now' rather than 'save later'.

(T4.1) Can I come back?

(T4.1.1) Request to suspend indexing the current screen$_1$

> **Phase 1**, Story 3, Features, c_2, Clip 11.00 – 11.20 *"Features – well – I can come back can't I?* **[Evidently considering two or more attributes simultaneously]***"*

(T4.1.2) Request to suspend relating the current story₃

> **Phase 3**, Story 1, a_4, Clip 62.11 – 62.33 *"Maybe if I relate some stories to the other stories and then come back"*

(T4.1.3) …to the guide if I need to₄

> **Guide 1**, d_{10}, Clip 02.35 – 02.47 *"And will I be able to go back to this at any time to…just check that I'm writing the right things?"*

(T4.2) Can I go back?

(T4.2.1) Requesting to return to view previously saved phase 1 indexing₁

Reassurance that the first save is not final may give an expectation that the story can be revisited during the same phase after having saved it.

> **Main**, Story 4, d_1, Clip 23.20 – 23.43 *"**[Indicating that they would like to move away from the current screen in order to do something they feel they ought to be able to do at this point]** Oh, once I've saved it I can't go back [...] Oh okay, sorry, I'm getting ahead of myself [laughing]"*

(T4.2.2) Requesting to return to view previously saved phase 3 relating₂

It may be that the reassurance given to participants, about being able to revisit their Phase 1 indexing even after having saved it, gives an expectation that the same applies to relations.

> **Phase 3**, Main, b_{18}, Clip 59.57 – 60.47 *"**["Why did you do that? - not relate yourself as reader"]** I missed that bit; where was that? Can I go back there [6]? **[Remarking that a particular story does not relate to them as reader]**"*

(T4.2.3) Requesting to return to view previously saved phase 4 indexing₁

This request to revisit a twice saved annotation is exceptional since it is relatively unusual for participants to make changes during Phase 4.

Main, Story 1, a_{12}, Clip 81.25 – 81.59 *"***[Indicating that they would like to move away from the current screen in order to do something they feel they ought to be able to do at this point]** *Could I go back to this one? [...] No? It's too late?* [laugh] *Okay, so she won't be intrusive, no sorry unreliable; she was but…"*

(T4.3) Moving away from or requesting to move away from the current screen in order to gain understanding of a task part or the task as a whole$_{17}$

Protagonist → Guide, Story 1, a_{13}, Clip 13.10 – 14.42 *"I think I need to go back to the guide again* **["What does task instruction term or expression mean?"]***"*

(T4.4) Indicating that they would like to move away from the current screen in order to do something they feel they ought to be able to do at this point$_{19}$

This category collects those incidents where the participant indicates that they would like at this moment to move away from the current screen in order to do something. Whether they actually move and what they do when they get there is not important and will usually have been captured elsewhere. The significance of this category is the fact that participants want to be somewhere else and be doing something else.

Phase 1, Audience → Character, Story 1, a_{20}, Clip 34.03 – 34.18 *"...Let me just add that on* **[Evidently considering two or more (non-point) attributes simultaneously]** *[Back]"*

(T4) Data analysis

Table 9.68 shows that most navigational incidents (10) occur on the Main screen and that half of these occur prior to Phase 1 entry. This is the point at which participants are first invited to view the Guide. Given that Phase 1 involves a number of screens it is not surprising that most navigational incidents occur during this phase. The highest incidence (8) occurs on the Feature screen. Even though there is the same level of activity on the Narrator & Audience

screen, it is the attribute, Narrator (6) or Audience (2) that is receiving attention at the time. What the table does not show is the direction of the movement which is usually but not always backwards to a previously viewed screen.

In every participant group a quarter are navigationally inactive. Due to the unusually high activity of one of its members, the most active group is *a*; the least active group is *b*.

The arrangement of navigational instances on our task part complexity scale (Table 9.70) forms a parabolic curve; i.e. there is a low point of activity on the Point screen (Median) and steadily increasing activity on either side, rising to maximum activity on both Feature (Complex) and Narrator & Audience (Simple).

Table 9.68

Navigation – Attribute or Task Part and Phase

Phase → *Navigational point of departure↓*	**Pre**	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**	Total
Guide	5	0	0	0	0	**5**
Main Screen	5	1	0	2	2	**10**
Point	-	1	-	-	0	**1**
Main Point	-	0	-	-	0	**0**
Other Point	-	0	-	-	0	**0**
Feature	-	8	-	-	0	**8**
Character	-	1	-	-	1	**2**
Protagonist	-	2	-	-	0	**2**
Antagonist	-	2	-	-	0	**2**
Other Character	-	1	-	-	0	**1**
Narrator & Audience	-	0	-	-	0	**0**
Narrator	-	5	-	-	1	**6**
Audience	-	2	-	-	0	**2**
Read	-	-	1	-	-	**1**
Relate	-	-	-	3	-	**3**
Related Reader	-	-	-	0	-	**0**
Related Story	-	-	-	4	-	**4**
Save now	-	1	-	0	0	**1**
Total	**10**	**24**	**1**	**9**	**4**	**48**

Table 9.69

Navigation – Participant group membership

Participant group	a						b						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	5	0	12	1	0	5	1	0	1	0	1	1	4	2	0	3	1	0	5	0	0	2	2	2
Incidents per group	23						4						10						11					
Total Incidents	48																							

Table 9.70

Navigation –Task Part complexity*

	Complex		**Median**	Simple	
Task Part	Feature	Relate	**Point**	Character	Narrator & Audience
Incidence	8	7	**1**	7	8
Totals	15		**1**	15	
	31				

*Includes only those incidents that occur on an annotation task part.

(T5) Previous readers' suggestions

In terms of the model, previous readers' annotations cluster to highlight and draw attention to a story or story part. Individually, annotation frames provide unique perspectives and can function to assist future readers' interpretation of stories.

This category only applies to those taking part in the second session, i.e. Participants 17 to 24. The mediator chooses a time during their annotation of the first story to draw their attention to the facility. In order for participants not to feel that viewing is compulsory, the mediator does

not draw their attention to it again unless it is felt that additional suggestions might be helpful to them.

Two distinct behaviours are discernible here: those who view the list to stimulate their own ideas and those that prefer to view the list after having made their own suggestions. It is found that the mediator needs to make clear what they can do with the list once it is in view; in particular, to record their agreements with previous readers by selecting from the list rather than just indicating verbally. These participants probably assume that precisely because a previous reader has put *X* it doesn't need to be put again.

Every indexing screen contains a list but most participants after having viewed the list on the *Point* screen, do not view the others. It may be that the facility is overlooked because it lacks prominence, or perhaps there is an assumption that the list is associated with only the *Point* attributes. On the other hand, it may simply indicate a participant's choice not to view suggestions for attributes requiring less than sentence length inputs.

(T5.1) Accessing a list$_{19}$

> **Character**, c_{22}, Story 11, Clip 45.00 – 45.25 *"***[Rearranging the editor's suggested character roles]** *let me just read down the clues here ..."*

(T5.2) Selecting from a list$_6$

> **Feature**, d_{23}, Story 12, Clip 33.00 – 33.27 *"Well ... I mean they've got everything there 'under-resourced' – that's a problem you find. I can't really think of anything else that they haven't [...] Yeah definitely and 'bureaucracy' definitely..."*

(T5.3) Commenting on a list item or the list generally[12]

> **Point**, *a20*, Story 5, Clip 40.47 – 41.28 *"…It's quite detailed, I think for a non-medical person; talking about classifications wouldn't mean much to them but they would know that … you've got problems about it […] and the Big Brother concept comes in for them doesn't it, as it does for us medics"*

(T5) Data analysis

Table 9.71 shows annotators that appear less interested to see previous annotators' suggestions will typically access the list on the Point screen, perhaps make some comment on it but will then not use this facility again. If, as in the case of participant *b18*, they access this Point list on more than one occasion and in the context of different stories but then do not use the facility on subsequent screens then it may be that they simply do not realise that it is available for all indexical attributes. Regardless activity is lower than might have been expected, especially on the Narrator & Audience screen.

Table 9.71

Previous readers' suggestions – Attribute or Task Part and Phase

Participant and group→	*a*		*b*		*C*		*d*		
Attribute or task part↓	*17*	*20*	*18*	*24*	*21*	*22*	*19*	*23*	**Total**
Point	1	5	2	0	2	2	2	3	*17*
Main Point	0	0	0	1	0	1	0	1	**3**
Other Point	0	1	1	0	0	0	0	1	**3**
Feature	0	2	0	0	0	0	0	3	**5**
Character	0	0	0	0	0	2	0	1	*3*
Protagonist	0	0	0	0	0	1	0	0	**1**
Antagonist	0	0	0	0	0	0	0	1	**1**
Other Character	0	0	0	0	0	0	0	1	**1**
Narrator & Audience	0	0	0	0	0	1	0	2	*3*
Narrator	0	0	0	0	0	0	0	0	**0**
Audience	0	0	0	0	0	0	0	0	**0**
Total	1	8	3	1	2	7	2	13	37

(T6) Phase 4 indexing

Three behaviours are discernible. First is where participants immediately decline to enter Phase 4; they are happy with what they've done and would not change a thing. This is either because their approach to the task has been spontaneous and they wish to keep it that way or they regard Phases 1 and 3 as quite separate. Second is where participants think they are happy with what they've done but just want to make sure. Usually once in Phase 4, this group will make changes to their original indexing. Finally there is a group that expect to make changes because their understanding of the task has changed over the whole process. They feel more knowledgeable and confident about what they can do now. Also, the stories are no longer disconnected and someone else's but related in ways that they themselves have suggested and this may call for adjustments to their indexical annotation.

(T6.1) Declining to enter phase 4_{14}

> **Main**, d_{10}, Clip 45.18 – 45.36 *"... I thought about it at the time and so ... I'm not going to change it because that would be, again, for the sake of it ..."*

(T6.2) Entering phase 4_{12}

> **Main**, c_{16}, Clip 78.59 – 79.27 *"Now I can exit, or I can re-index - Phase 4 re-index a story - I can't re-index can I? Oh yeah I can because I have to click on this yeah? That will re-index stories – just probably look at that once again just to remember what I wrote there"*

(T6) Data analysis

Table 9.72 shows which participants enter or decline to enter Phase 4. Exactly one half of medics and just over one third of knowledge media researchers enter Phase 4. Per group, the

number of participants that enter Phase 4 is at least one third of its members and at most, one half of its members.

Table 9.73 provides a view from the perspective of story complexity, which shows a very slight positive correlation between this and story revisits. That is, the more complex stories are revisited more often than the less complex ones.

Table 9.72

Phase 4 indexing – Declining to, or entering phase 4 by participant group

Subcategory→ *Participant and group↓*		**Declining to enter Phase 4**	**Entering Phase 4**	**Totals by set**	
A	4	√		**3**	**3**
	5	√			
	12		√		
	13	√			
	17		√		
	20		√		
B	7	√		**4**	**2**
	9	√			
	11	√			
	14		√ (3 incidents)		
	18		√		
	24	√			
C	2		√	**4**	**2**
	6	√			
	15	√			
	16		√		
	21	√			
	22	√			
D	1		√	**3**	**3**
	3		√		
	8	√			
	10	√			
	19		√		
	23	√			
Total		**14**	**10**	**24**	

Table 9.73

Phase 4 indexing – Declining to, or entering phase 4 by story complexity

Subcategory→			**Declining to enter Phase 4**	**Entering Phase 4**	**Totals by complexity**	
Complexity Ranking↓	*Set↓*					
Complex	1	*a*	a_4, a_5, a_{13}	a_{12}, a_{17}, a_{20}	**3**	**3**
	8	*d*	d_8, d_{10}, d_{23}	$d_1, d_3, d_{19}, a_{12}*$	**3**	**4***
	9	*a*	a_4, a_5, a_{13}	a_{12}, a_{17}, a_{20}	**3**	**3**
	4	*d*	d_8, d_{10}, d_{23}	d_1, d_3, d_{19}	**3**	**3**
Totals (Complex)					**12**	**13**
Median	2	*b*	b_7, b_9, b_{11}, b_{24}	b_{14}, b_{18}	**4**	**2**
	5	*a*	a_4, a_5, a_{13}	a_{12}, a_{17}, a_{20}	**3**	**3**
	7	*c*	$c_6, c_{15}, c_{21}, c_{22}$	c_2, c_{16}	**4**	**2**
	10	*b*	b_7, b_9, b_{11}, b_{24}	b_{14}, b_{18}	**4**	**2**
Totals (Median)					**15**	**9**
Simple	12	*d*	d_8, d_{10}, d_{23}	d_1, d_3, d_{19}	**3**	**3**
	3	*c*	$c_6, c_{15}, c_{21}, c_{22}$	c_2, c_{16}	**4**	**2**
	6	*b*	b_7, b_9, b_{11}, b_{24}	b_{14}, b_{18}	**4**	**2**
	11	*c*	$c_6, c_{15}, c_{21}, c_{22}$	$c_{16}†$	**4**	**1†**
Totals (Simple)					**15**	**8**

* Participant a_{12} annotates and reviews Story 8 in addition

† Participant c_2 chooses not to review Story 11

(T7) Mediator is curious to know

If the mediator notices something during the task they may ask about it later or at the time.

(T7.1) "Why did you do that?"

(T7.1.1) - not relate yourself as reader₄

What this category can reveal is where the UI has a disabling rather than a facilitating effect

on participants who might otherwise perform this task part.

> d_8, Discussion afterwards, Clip 42.09 – 42.35 *"[**Forgetting – task parts**] Yeah, yeah, yeah. In fact I forgot [...] In the beginning I was trying to figure out what that field was related to but after that I think that I forgot, just forgot"*

(T7.1.2) – not use the menus

(T7.1.2.1) – not use the narrative Features menu[2]

> b_7, Discussion afterwards, Clip 62.53 – 63.12 *"I saw the generic list but I didn't like the generic list very much – I hope I gave reasonable answers"*

(T7.1.2.2) – not use the menus generally[3]

> b_{14}, Discussion afterwards, Clip 57.42 – 58.21 *"Oh no, no, no, no, no [...] I guess I'm not really a big – [...] usually I don't [...] I did it the first time, then it was like, some of these things I could probably just do better myself rather than…scan through all of them trying to find something; I can just say what I want to say […] not trying to shape it to what someone else does"*

(T7.1.3) - not view previous reader's suggestions[3]

A question put to annotators in the second session if they made little or no use of the additional viewing and selection facilities. The relevant questionnaire response here is degree of restriction felt.

> d_{19}, Discussion afterwards, Clip 87.14 – 88.18 *"The line of thought of the reader…I thought I would get my own ideas first without having a look at what others had to say because I would be … saying 'that is true' and following that line of thought"*

(T7.1.4) – enter Phase 4[1]

> a_{17}, Discussion afterwards, Clip 74.13 – 74.32 *"Oh that's the job; you see I spend all day checking things [laugh]"*

(T7.1.5) "find so many relationships between stories"[1]

> a_{20}, Discussion afterwards, Clip 112.32 – 112.47 *"…but we're quite interested aren't we; this is our little angle"*

(T7.1.6) "find relating easier than indexing"₁

> *d₂₃*, Discussion afterwards, Clip 68.50 – 69.34 *"[...] I think it depends what kind of brain you've got ... when you break down things ... is that related to that? ... emergency-emergency; fracture-fracture ..."*

(T7.2) "What are you thinking?"₁₅

It is usual for the mediator to encourage participants to articulate their thoughts and so those responses that are recorded elsewhere are not repeated here. What remains are incidents where the mediator feels that the participant is experiencing difficulty with a task part and so asks the question directly. The mediator may also ask 'why did you do that?' in order to establish whether the participant has understood the task part and to clarify their intent.

> *c₂₂*, Story 3, **Feature**, Clip 14.52 – 15.49 *"***[Can I say what I want? I.e. how free is free input allowed to be?]** *Pharmacists would be perhaps um disappointed ... of his own values; trying to get another organisation to agree; that why should he have those values almost - or try to save money or think of the patient, storage and if another lot [...] I think disappointment that he spent all this time and energy and at the end of the day it hasn't happened for him has it"*

(T7.3) "Did you find the stories interesting?"₇

Not all participants are very vocal or otherwise expressive during the task itself and so at the end the mediator might give them the opportunity to say something by asking them this question.

> *a₁₇*, **Discussion afterwards**, Clip 78.19 – 78.54 *"Um yes, and I think probably the second [5] and the third one [9] more so than the first one [1]. The first was quite short wasn't it, and probably to the point; the second and third were more sort of um – I ticked them as being autobiographical, and probably because of that they were more interesting because you felt as though you were actually sharing someone's experiences rather than a short, err skit in a review."*

(T7.4) "Did you deliberately skip stories 4 and 8 because they didn't interest you?"[1]

> *b[24]*, Read, Clip 44.32 – 44.58 *"No! [...] I thought it didn't go to the next one so I did it again. I don't think I skipped [...] no, no, no"*

(T7.5) "Imagine a resource of this kind?"[2]

Sometimes this question was asked as a way of trying to get participants to visualise such a resource and in particular how suggestions such as theirs would contribute to a fluid organisational structure; in other words, what purpose reader annotation serves and what might be learned from their annotation. When asked in this way, the mediator would probably be encouraging the reticent participant to make a suggestion in which case a direct verbal answer would not be expected.

> *c[22]*, **Discussion afterwards**, Clip 92.24 – 93.54 *"Yes! ... I think so, and you could use them as we said about for different audiences and [...] it would be very interesting. [...] And I found it interesting to relate one story to another because it made you think slightly what might be maybe not as obvious – a sort of negative as well as a positive in there yes ..."*

(T8) Commenting on the model or contextual implementation[22]

This category allows participants to show their understanding of the model by the comments they made during the task process and immediately after. It is in this same order that the entries are listed. Participants in the second session occasionally comment on how the suggestions made by medics and non-medics respectively, might differ and whether non-medical perspectives add value.

> **Discussion afterwards**, *b[11]*, Clip 44.12 – 44.46 *"That's very interesting [...] I can kind of relate to this because I've thought about how do we - this is a nice way of doing it actually ... these hyperlinks and so on usually come from the author don't they and [...] it's the reader that matters; and even the choice of indexing terms, again it's the reader that matters; but people are different…"*

(T8) Data analysis

Table 9.74 shows that exactly one half of the medics and one half of the Knowledge Media researchers make comments about either the model or its contextual implementation. Figure 9.22 shows at which point within the task participants tend to make these comments. On the left side of the diagram, the number of diamonds represent the relative proportion of comments made during each respective task part. Most comments are made at the end of the task as participants reflect back on what they have done. On the right side of the diagram, the number of diamonds alongside each task rating represents the relative proportion of comments made by participants who gave that rating. As in our analyses of the annotation categories above, the subscript on each rating refers to the overall number of participants that gave that rating and, apart from not representing the relative proportion of non-events, this is taken into account. The *Quite Unrestricted* participants made most contributions: more than one per person. The *Unrestricted* participants made least contributions: less than one per person. The single *Restricted* participant made exactly one contribution.

Figure 9.22

Commenting on the model or contextual implementation – Where it was made and the degree of restriction felt
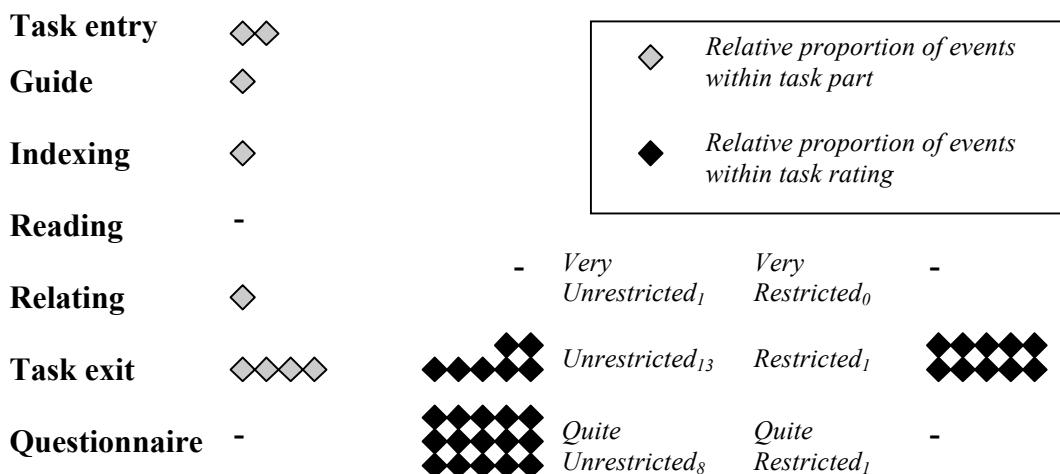
Table 9.74

Commenting on the model or contextual implementation – Participant group membership

Participant group	a						b						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	1	1	0	0	2	5	0	1	1	0	0	2	1	1	0	2	0	3	0	2	0	0	0	0
Incidents per group	9						4						7						2					
Total Incidents	22																							

(T9) Commenting on the task[110]

This category collects what participants say about the task more generally, whether by the comments made during the task and discussion immediately after or by the comments made on the questionnaire. Because participants in the first session could complete the questionnaire when they liked they tended to spend longer over it and so made more comments than participants in the second session who were asked to fill it in immediately after completing the task and in the presence of the mediator. Some in this latter group made verbal comments that they might otherwise have typed; these comments can be identified by the video clip which the written comments don't have.

Occasionally comments regarding the task are in response to mediator's direct questions where the **Mediator is curious to know**, in which case they won't be repeated here.

> **Discussion afterwards**, c_2, Clip 52.26 – 53.23 *"I wasn't always quite sure what I was meant to be doing, but where there were prompts it became easier because in effect I had a template as it were of what somebody else had done; and although in a way that template sometimes influenced you and sometimes you went back and you thought 'well no actually I don't want to keep all those things', the fact that the template was there gave you an idea maybe of what the instructions meant; because if you've not been thinking about things in a particular way, other people's indexing systems don't always make clear sense because you don't know what the theory behind them is and why they want to do them that way, so I found that quite useful."*

(T9) Data analysis

Many more comments are made in respect of the task than in respect of the model; all participants except one contribute and all except one contributor makes two comments or more. By far, the majority of these are either made verbally at the end of the task or are written in the questionnaire later. In terms of per participant average, most contributions are made by the single participant who felt *Very Unrestricted* and the single participant who felt *Quite Restricted*; least contributions were made by the single participant who felt *Restricted*. The *Unrestricted* or *Quite Unrestricted* participants make on average, an equal number of contributions each.

Figure 9.23

Commenting on the task – Where it was made and the degree of restriction felt
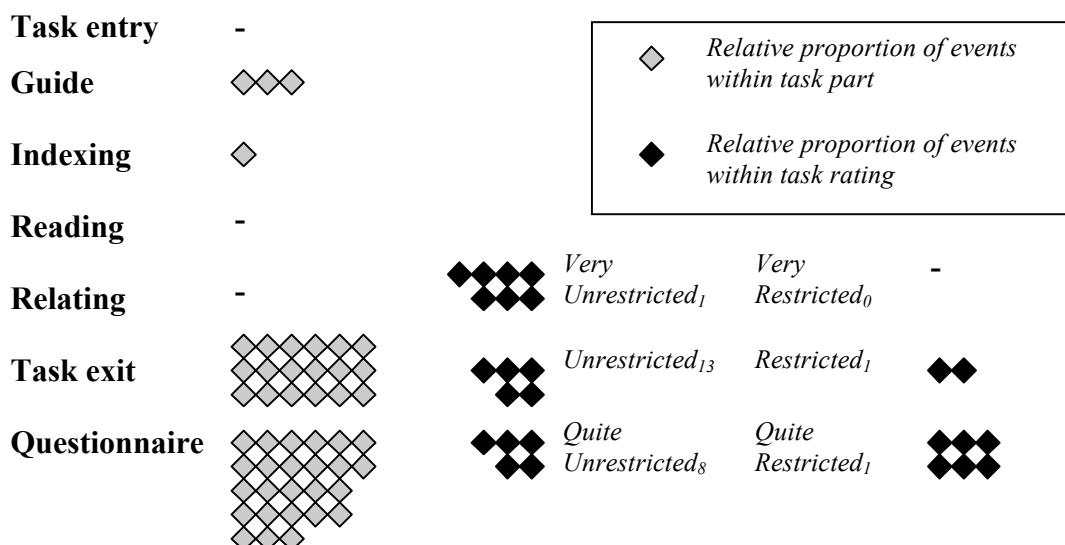
Table 9.75

Commenting on the task – Participant group membership

Participant group	a						b						C						d					
Participant	4	5	12	13	17	20	7	9	11	14	18	24	2	6	15	16	21	22	1	3	8	10	19	23
Incident/s	0	2	7	4	3	6	7	2	4	8	8	2	10	3	1	6	6	7	2	6	2	6	3	5
Incidents per group	22						31						33						24					
Total Incidents	110																							

(T10) Talking about themselves[9]

This category tells a little bit about participants' backgrounds where they volunteer it. These are asides that because they are a bit detached, newsy or incomplete etc. do not qualify as stories. However, they do help to build a picture of who these people are and what they care about.

> **Discussion afterwards**, a_{17}, Clip 80.09 – 82.53 *"[…]I only see other pharmacists if we go out to continuing education evenings or social evenings, so that may only be once every couple of months or so. We're also very much – although there are moves afoot to change it – sort of on the periphery of the health service. We've always been sort of semi detached […]"*

9.2 - Discussion

Over the previous three chapters we have observed, analysed and discussed how untrained users use the story annotation tool. Four sets of data have been presented. The attempt has been to display the data in two ways: both collectively and from individual perspectives, and in the case of the latter, where it was felt relevant, questionnaire response data has been recalled and associated.

Chapter 7, the only one of the three that did not refer to the video recordings was concerned with product data in the form of participants' questionnaire responses and their attribute value suggestions.

Chapter 8 teased out those parts of the recordings data that lent themselves to quantitative analyses. It began by suggesting a rather unsatisfactory means of assessing story and attribute complexity: the number of evident prolonged reads of the text overall, and by attribute. Although unsatisfactory we found this, in combination with the questionnaire results, invaluable in our subsequent analyses of the qualitative data. We also presented in a series of diagrams, participant and group annotation patterns: relative agreement, relative use of menus and relative use of free text.

Chapter 9 being wholly concerned with the more qualitative aspects of the recordings data, engaged in a bottom-up categorisation of task behaviours and these we found, could be divided into three: particular annotations, story appreciation and the task generally. With regard to story appreciation, in the context of this particular experiment, there remained the question of whether stories could be abstracted from their discourse surround but still retain their affective properties.

With only twenty four participants and a rather restrictive task structure no firm conclusions can be drawn about peoples' annotation behaviours; nevertheless, certain behaviour patterns are just about discernible and these will be discussed in the next three subsections. The final section comments on the one firm conclusion that can be made regarding story engagement and its effects. The difficulty with employing a grounded approach to data categorisation is the potential explosion of new categories and having to ask on each, whether the incident

really does warrant a new category or would be better placed in an existing one, and whether the existing one now requires adjustment. This is why the recordings need to be played repeatedly; it requires getting to understand not so much the participant's actions and words but their intentions and thoughts. Moreover, understanding of these may only come through subsequently discerning similar behaviour patterns in other participants. No matter how many times the recordings are viewed and adjustments made, the analyst is very aware that what is captured and labelled represents just a small part of what actually occurred.

9.2.1 - Relative agreement

Firstly, there are two extreme approaches to attribute value suggestion: highly agreeable with the editor and barely agreeable.

The highly agreeable annotator will tick most of what the editor has suggested. This group then divides into two. The first will go on to make several suggestions of their own whether by selecting from an available list or by inputting free text, the second will very tentatively and only sometimes, make more suggestions.

The barely agreeable annotator will tick only those items that were particularly salient for them too; they may also rephrase an editor suggestion to make it more their own. They will then likewise go on to make their own suggestions, and many of these will be in the form of free text.

Between these two extremes can be detected another group in which the annotator expresses mild annoyance at the editor's intrusion in their task. They are reluctant to agree with

suggestions that they would have liked to have made independently if only they had been allowed to. As it is, for this group, the editor has left nothing else or very little else to say.

For this group especially, Phase 4 is useful because they have by this time passed through Phase 3 in which the editor is entirely absent, where all suggestions regarding story-story relations must be made in free-text and where too they have had the opportunity to think about relating themselves to the story as reader. Realising that more can be said regarding these stories, they feel encouraged to go back and add something of their own.

9.2.2 - Approaches to interpretation

With only the product data to go by, the difference in the kinds of attribute value suggestions among annotators can appear strange. It is only after repeated viewings of the video data that these differences are explained. One approach to the attribute is the question 'Who or what *might* this be?', whereas another approach is the question 'Who or what *is* this?' Hence annotators of the first group will suggest a number of values that we can interpret as strict alternatives: $XOR(c_1, c_2, \ldots, c_n)$ while the suggestions of the second can be interpreted as either singular or conjunction: $AND(c_1, c_2, \ldots, c_n)$.

The only attributes for which mutually exclusive choices were suggested were *Characters* attributes. Others however took the editor's lead here and suggested only single values or conjunctions. Some annotators asked of the *Narrator* 'Who might this be?' but then chose to suggest a suitably abstract term like 'Practitioner' or 'Doctor'. Their understanding of Narrative Style meanwhile was frequently to suggest conjunctions although the editor only ever suggested single values here.

9.2.3 - Point-driven approaches to interpretation

There is a lot of debate in literary research as to the precise nature of the point concept in narrative structure. Therefore, the absence of 'What does it mean?' category members with respect to *Point*, *Main Point* or *Other Point* should perhaps surprise. From their suggestions, it is evident that there were differences of opinion as to what constitutes *Point*, perhaps different again from the editor's which as one or two people observed often just highlighted certain text fragments. It was likewise very rare to find ill-fitting suggestions here.

More generally, although many annotators expressed a desire to stay close to the text, for example referring to it minutely when making suggestions, all annotators without exception moved beyond it in one way or another in making those suggestions. It was not inevitable that they should, since there was no compulsion to make suggestions and they could have chosen to skip over those attributes for which there was lack of evidence both in the story and in the authorial context. Reading between the lines is what narrative ordinarily demands and for point-structured narrative this is especially so. What can be said without doubt is that people who care about truth and correctness are often the very same people who are most adept at construction.

Over the next few paragraphs, each attribute will be looked at in turn with discussion on how participants tackled them and what the implications are for the proposed model.

Perhaps the most important attribute according to the proposed model is the *Main Point*, which doubling as story title offers the most visible means of story retrieval. The study data confirms the worth of *Main Point* by the quality of readers' suggestions and the fact that the scope for retrieval via this one attribute increases with each distinct suggestion.

Also revealed however is the tension between Point structured markup on the one hand and multi-perspective mark up on the other. If it is accepted that the point of the story is the author (or narrator's) imputed motive for its narration then the reader's (or annotator's) task in suggesting a *Main Point* value is to try to *discern* or *construct* that motive from the text and any accompanying clues. In the proposed model, the author's *Main Point* accompanies the text, and therefore would seem to eliminate the possibility of there being alternative meanings; there can be only one and that is the author's. Furthermore, this line of reasoning can just as easily be applied to the other indexical attributes in which case the text is effectively closed. The proposed model demands that the text be open and a way of achieving this is to see the point in particular as being annotator dependent rather than reader or author dependent. So when the reader encounters this attribute, they may be asked:
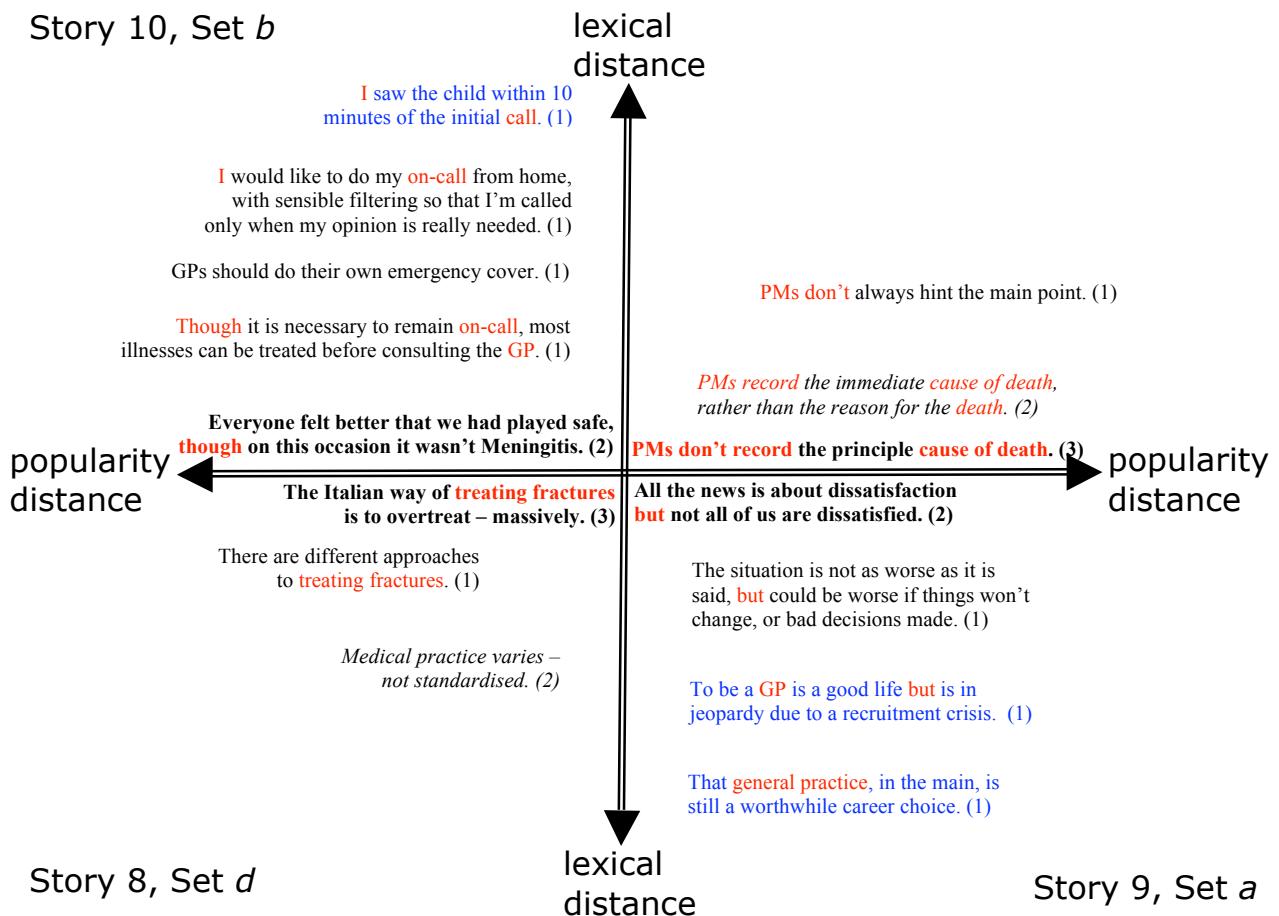
What for *you* is the main point of this story?

This allows them to take the author's main point as given, put what they perceive as the author's main point in their own words and thereby make it more accessible to them or to take temporary ownership of the story in order to change the main point. All these responses were evident in the study data and with between 2 and 5 new suggestions of *Main Point* for each story in the collection the arrangement of main point cues for story retrieval can be visualised as radiating away from twelve relatively dense centres marking consensus with the respective authors, so that annotators' rephrasing will cluster closely to the centres effectively enlarging them whereas their more radical reworking will position at distances from the centres effectively creating satellite retrieval spaces. Figure 9.24 provides a two-dimensional visualisation for four stories in the study, one taken from each of the four sets a, b, c and d. Each quadrant represents the main point space for just one of those stories. Within a given

quadrant, the most popular suggestions are located at the origin on the horizontal plane. Alternative suggestions that are lexically similar cluster at points along the vertical plane depending on their lexical similarity with the popular suggestions at the origin. For example, in the upper left quadrant, all but one reader suggests a unique Main Point, lexically more similar to other readers' Main Points than to the editor's Main Point.

Figure 9.24

Proximal visualisation of the Main Point suggestions for four stories

Story 10, Set *b*

lexical distance

I saw the child within 10 minutes of the initial call. (1)

I would like to do my on-call from home, with sensible filtering so that I'm called only when my opinion is really needed. (1)

GPs should do their own emergency cover. (1)

PMs don't always hint the main point. (1)

Though it is necessary to remain on-call, most illnesses can be treated before consulting the GP. (1)

PMs record the immediate cause of death, rather than the reason for the death. (2)

Everyone felt better that we had played safe, though on this occasion it wasn't Meningitis. (2)

PMs don't record the principle cause of death. (3)

popularity distance

popularity distance

The Italian way of treating fractures is to overtreat – massively. (3)

All the news is about dissatisfaction but not all of us are dissatisfied. (2)

There are different approaches to treating fractures. (1)

The situation is not as worse as it is said, but could be worse if things won't change, or bad decisions made. (1)

Medical practice varies – not standardised. (2)

To be a GP is a good life but is in jeopardy due to a recruitment crisis. (1)

That general practice, in the main, is still a worthwhile career choice. (1)

Story 8, Set *d*

lexical distance

Story 9, Set *a*

Key:

Bold = Editor's suggestion
Regular = Researcher's alternative suggestion
Blue = Medic's alternative suggestion
Italic = Researcher's alternative suggestion that a medic agrees with
(x) = Absolute popularity measure
Red = Lexical similarity

The *Other Point* attribute is less problematic. Even the author must concede that the reader may perceive points not actually made by them, at least not consciously. The other points of the story hold perhaps greater potential for knowledge communication than the main point. Not only are there more of them but being secondary, they are less visible in the text than the main point. It is only by annotation that they can be made to stand out from the text.

The *Feature* attribute serves two functions. Firstly it reduces and makes manageable, the number of story dimensions and secondly it provides a means of keyword search. It is argued that without it, the annotator will place feature-like concepts on other dimensions with the effect of obscuring or complicating the suggestions already made there. This is something that can easily be tested. What the current study has shown is that this attribute is valuable because annotators usually regard it as easy to suggest values for. It is less restricted than the other indexical attributes and encourages spontaneity rather than deliberation.

The *Character* attributes were tackled in a number of ways. One of these was to suggest a range of possibilities as to who might fulfil a given role rather than to choose and annotate from a particular perspective. This may have been due to a user interface which invited multiple suggestions or it may have been because the characters were often difficult to identify. The problem with this more abstract approach is just that: it does not offer a range of clear alternative perspectives that the proposed model would require in order to be able to provide intelligent search. Again the problem can be resolved by asking the annotator

Who for *you* are the protagonist, antagonist and other character in this story?

By identifying the narrator in terms of professional role, the editor uses the conventional point-structured view of the narrator rather than the traditional plot-structured view. That is, the editor regards the narrator as a person who physically delivers the text rather than a device constructed by the author for the purpose of telling the story. This ambiguity is passed on to the readers whose task is made considerably more difficult as a result. Given the earlier argument that the annotation framework ought to be able to accommodate plot-structure narratives as well as point-structured ones, *Narrative style* would be a better way to describe this attribute. This allows stories to be clustered according to whether they are narrated from direct experience say, and the degree to which the narrator as a personality is revealed by the text. What was learned during the study was that participants did not regard the narrating aspects as mutually exclusive especially in the case of stories that contained stories.

The *Audience* attribute holds a great deal of potential for story mark up. Here, unlike the others, the reader is asked to suggest groups that they think only might be receptive to the story and this forces them to consider the story more abstractly. One strategy was to suggest groups of individuals they had identified earlier as story characters. For others, the audiences were identified as general interest groups. Some stories were regarded by some readers as being suited for exchange one to one rather than broadcast and for these stories the readers would identify individuals rather than groups.

The *Relational* attributes provided the greatest surprises. Downplayed in the design of the user interface, these two attributes were presented on a single screen where one of those attributes dominated the space with the consequence that the other attribute tended to get overlooked. Also unlike the indexical annotation, readers could not revisit their mark up in a final consolidation phase: once they had saved their suggested story relations there was no

way of going back. Nevertheless the quality and quantity of suggestion for these attributes was high even given that the reader was entirely on their own in this phase with no editor or previous readers' suggestions to guide them. There are a number of possible reasons for this. Firstly, the difference between the relational attributes and the indexical attributes is that the relational attributes are less restrictive. An input can range from a single word to a sentence or more. Secondly, the reader is now in no doubt that here it is their perspective that matters and nobody else's. Thirdly, there is evidence to suggest that the editor actually had a stifling effect on some readers who felt unable to add anything of their own. Now at last away from that, they had the chance to offer something that was entirely their own. However, although all participants are able to suggest links between stories, not all are able to suggest how a particular story relates to them as reader. There is a positive correlation between the ability to readily relate to stories and the ability to announce one's engagement in expressions of humour or pity. The greater their emotional response, the easier it is for them to relate. Meanwhile, participants who don't respond or who respond only in as far as to express puzzlement or interest will not relate. It is possible that stem suggestions of the kind "I can relate to [title] in the sense that ..." might help, especially if the reader's Main Point suggestion is inserted as title because the reader thereby gains a kind of ownership and also, the effort required of them is reduced. Chapter 10 summarises these results as part of a broader discussion of the thesis.

Discussion and Conclusion

This thesis began by exploring the prolificacy of the story both in terms of structure and of mode within a variety of professional domains. One of these domains, health, is of particular interest since although it was neither discussed nor explored there, previous research of medical problem solving (Kwiat, 1999), had already revealed something of the value of narrative, even within the confines of the diagnostic process. A reason for the prolificacy according to anthropolgy, psychology, and literary theory, is that humans have an instinct for narrative both from a telling point of view and a listening one.

In this final chapter we discuss our main findings in relation to the research questions identified in Chapter 1, the implications for storybase technologies, and consider potential future research in these areas. There is also some discussion on the design of studies such as this, in particular, the influence user interface design has on both qualitative and quantitative data.

10.1 – What makes stories distinctive from other forms of discourse?

(Chapter 2) Fundamentally different to logical argument, the story positively demands those things that the other either denies or restricts: emotion, agency, character, perspective, and so on. To understand a story on some level is to become engaged in its telling and this will normally be achieved by allowing oneself to empathise or identify with the story's characters or its narrator.

However, it is not enough to accept this instinct for narrative; we need to be able to articulate what distinguishes the story from other discourse forms, and in order to do so we examined its structure. Broadly there are three models: *physical features*, *structural affects* and *points*. According to the first, to qualify as a story, certain features must be discernible and there are various theories as to what constitutes necessity or sufficiency. The structural affects model allows anything to qualify provided that it moves the reader or listener in an appropriate way, and it is for the reader or listener to decide whether they are so moved. Finally, the point model requires the reader or listener to grasp, or fail to grasp, the reason for a story's telling.

10.2 - How has narrative technology been conceived to date?

(Chapter 3) Understanding the structural properties of narrative is of course the first requirement for those involved in designing technologies to support this medium. Some of these technologies were looked at, as were some contemporary domain models thus far not technologically implemented. Many of these contemporary models are based on the traditional physical features model. There are two reasons for this. Firstly, it is the only model that allows content to be disassociated from teller and audience, thus allowing that content to assume an objectivity that in the other models is just not possible. Secondly, people's conceptions of what constitutes narrative will usually involve physical features.

10.3 - Do healthcare professionals use the popular and available online discussion forums to share stories?

(Chapter 4) It is for the above reasons that a physical features model was selected for Study 1. In this study the question was whether and to what degree, medical people tell stories within an asynchronous online discussion forum. According to the particular physical features model selected for Study 1, a good proportion of postings to that forum did indeed contain stories. Analysis of the data also suggested that the criteria were overly strict and that if another model had been used the proportion of stories would probably have been greater.

Although we found medical professionals who routinely correspond via online discussion, and evidence too of stories within their discourse, we also found that the discussion forum could only support story-making to a degree and in some respects was very lacking in its support. This moved us to our next research question.

10.4 - How can we conceive purpose-built story technology for health care professionals?

(Chapters 3, 5 and 6) Attention turned to proposing a technology designed specifically to support story-making: the construction, understanding, recall and telling of stories of all kinds. This requirement suggested a generic story-making model, one that could incorporate all three of the theories examined previously: *physical features*, *structural affects* and *points*.

The physical features model enables a story to have distinct attributes that can be considered in abstract and objective terms. The structural affects model on the other hand, introduces variance; it allows the reader to respond to the story on a highly personalised level. Similarly, the point model involves the reader on an active level by allowing them to take temporary ownership of the story and retell it in a perhaps different way. Of course there would need to be provision for this kind of direct interaction with the stories, motivating the next question.

10.5 - What are the requirements for a story annotation scheme?

(Chapter 5) Our proposal is for a story-making model that allows multiple perspectives: that of the author and those of readers including the returning author. Secondly, we sought and found a set of attributes appropriate for a generic story-making resource, although we are aware that the current proposal may well not be the sufficient or final set.

We borrowed from three models, as reviewed in Chapter 2: *characters* and *feature* were suggested by the physical features model; *audience* and *related reader* by the structural affects model; *points*, *narrator*, *author* and *related story* by the point theory. The attributes of the resulting story-making model, subsequently embedded in the story annotation tool, were as follows:

Main Point – What is the main point to this story?

Other Point/s – What are the lesser but nevertheless important points to this story?

Feature/s – What are the saliencies, those things that might make this story memorable?

Protagonist/s – Name main character/s and / or character trait/s

Antagonist/s – Name opposing character/s and / or character trait/s

Other character/s – Name peripheral character/s and / or character trait/s

Narrator/s – Suggest the teller/s and / or the style/s of telling

Audience/s – Suggest which group/s might be interested in this story

Related Reader – What relates you to this story?

Related Story – Is this story directly related to that story? If so, explain how.

10.6 - How can story annotation capability be delivered in a software tool?

(Chapter 6) Imagine a collection of stories, such as those discovered during Study 1. Imagine this collection to be potentially unlimited in terms of its size. How do we on the one hand, make those stories accessible to potential audiences and on the other, encourage audience members to build the resource by telling their own stories in response. Our suggestion was firstly, to make those attributes annotatable by any number of people and secondly, to facilitate story clustering according to those annotations.

Our aim was to make annotation as easy and instinctive as possible, and an earlier pen and paper study, using the same attribute set, suggested that the annotation model was

usable. Chapter 6 details the design of the experimental tool, developed to test the concept.

10.7 - How do untrained users use the story annotation tool?

(Chapters 7 – 9) How do users make sense of, and use, a new genre of tool such as the proposed storybase? Not only is this a tool focused on knowledge sharing through story, itself a new concept for all participants, but it affords rich and structured annotation that goes beyond current social web tagging. Will users understand the attributes in the above markup scheme? Are there any important attributes missing? Does the user interface deliver the markup scheme in a coherent way? These are some of the issues addressed in the investigation of this research question.

Knowledge Media Researchers and Health Care professionals were recruited as participants to evaluate a prototype graphical user interface for story annotation. The tool was constrained to enable data gathering, within a constrained period (ranging from 45 minutes to 3 hours), of a range of different kinds of user annotation. The data gathered covered:

- story annotations (as defined by the narrative markup model)
- screen movies with audio commentary
- post-task questionnaire

We now summarise and discuss the key findings from the analysis of these data sources when brought together. We will reflect also on methodological lessons learnt, as part of this process.

10.7.1 – Process data illuminates questionnaire data

Analysis of the attribute values and questionnaire data was comparatively simple because they could be done in isolation of the video recordings. However, when it came to viewing the recordings, the recordings data and the questionnaire data were occasionally contradictory: what participants rated as 'difficult' or 'easy' on the questionnaire could appear reversed as could the level of restriction felt or the helpfulness of the menus. This was a valuable finding since it indicates that questionnaire data on its own can be unreliable and also suggests that this may have something to do with questionnaire design. If for example, the questionnaire provided a graphic reminder of the attribute or task part rather than just employing words, then there is greater likelihood that the participant will better understand what is being asked of them, and also less forgetful of what they did or felt back there whether moments or hours ago.

10.7.2 – Evident user engagement with the stories

The attribute values data was surprising, both in terms of quantity and quality. Whereas the editor's suggestions could be made in a leisurely way, the participant must have felt the pressure of the task upon them but they nevertheless were extremely articulate,

imaginative and knowledgeable. It may be possible to tell whether a participant is a

Knowledge Media researcher or a Health Care professional just by attending to their

attribute value data but not by the quality of their input. All participants proved very able

to annotate stories regardless of whether the domain was familiar or foreign to them.

We divided the annotation schema into what we called indexical attributes (*points*,

features, *characters*, *narrator* and *audience*) and relational ones (*related reader* and

related story). For the indexical attributes the most popular method of input was explicit

agreement. Menu selection was offered on only seventy five percent of indexical

attributes and perhaps for that reason was the least popular form of input. For those

attributes that offered menus the picture is mixed. This we believe is partly due to the

variation in story type: professional, social and technological, partly due to the topic

matter within story type and partly due to annotator preference.

That the next largest category after explicit agreement is free text input is encouraging

because it indicates that annotators care enough about what they are doing to create

suggestions rather than reusing those of someone else or selecting from a menu. On the

other hand, the use annotators made of the menus proved how valuable they can be. The

basic built-in menus we have used are only suitable for those indexical attributes that can

be satisfied with word values: attributes that in another context would permit social

book-marking or folksonomic tagging. Here visitors to a website throw unordered

collections of words into a popularity ordered pool of words which taken together show

other visitors what that website might offer them. The major departure from a website

tagging facility is that in our schema no such restrictions are imposed; an annotator may suggest multiple word instances or may just as well suggest more meaningful phrases or sentences. Notice that for the *feature* attribute in particular, single word markup is not enough for some annotators who will frequently use something longer.

In Chapter 7 we discovered a number of annotation behaviours just by attending to the attribute values they suggested. One of these was the transposition of attribute values between compatible attributes, a behaviour that did not surprise us since it was factored into the design of the task user interface: the editor's story points could be promoted and demoted. More interesting was that annotators did the same thing with the editor's choice of characters which the task user interface did not explicitly facilitate.

10.7.3 – Reuse and transposition of annotations within stories

Another discovery was the reuse of an attribute value in a different context. A demonstration of this was where annotators suggest audiences that they earlier suggest as characters, thereby indicating that the story's characters will determine the audience. In doing so they did not focus only on the protagonists but would also include antagonists and peripheral characters. This suggests that some stories particularly target 'people like us', while other stories target 'people like them' and still others target 'people whom people like us can identify with'.

Just as frequently however, annotators suggest the opposite of reuse: that the audience can be people and groups not represented in the story, therefore that the scope for interest is large, even extending out to 'people in general'. That annotators occasionally suggest an individual as a potential audience suggests that even though these stories were borrowed from a public resource, they could be read as very personal. For the narrator, the most notable annotation behaviour revealed story complexity; this was where a given story would be regarded as having more than one style of narration.

Chapter 7 analysis of attribute value data separates the indexical and the relational attribute value data. Firstly this is because each respective type is annotated within its own task phase. Secondly, the level of assistance offered by the user interface is different for each. Thirdly, while the indexical attributes allow the story to be regarded as arguably separate from the annotator and the other stories in the collection, the relational attributes do not.

10.7.4 – Relating stories to each other

For the *related story* attribute we found that every annotator who announced a link between stories offered an accompanying explanation. Although the user interface allowed them to make only one physical link between a given pair and offered only one physical space to explain it, annotators occasionally gave quite lengthy and complex explanations. These explanations often revealed indirect relations even though the user interface guidance specifically asks for direct relations. The following categories of

explanation were identified and allowances for multi-faceted explanations enabled more than one to be assigned:

M = **minimal** (a compact account)
D = **descriptive** (a sentential account)
E = **embellished** (beyond descriptive)
P = **personalized** (identification with)
V = **suggestive of value**, **belief**, **moral** (not personalized)
G = **genre classification** (basic literary kinds)
T = **topical classification** (basic themes)
C = **contrasting relationship** identified
Δ = **three-way relationship** identified

The *related story* explanations were so impressive that we were able to envisage a very effective multiple view organisational structure for story collections just on this attribute alone. Even in the absence of explanations the simplest organisational structure would show which stories were linked and relative (popularity) strengths of those links. Web applications for visualising semantic discourse connections, such as Cohere (Buckingham Shum, 2008), are a promising element in future storybase user interfaces.

10.7.5 – Relating stories to readers

Unlike the *related story* attribute, the *related reader* demanded explanation. Annotators could do this by selecting one or more primary care roles from a menu and/or by entering free text. Again a given explanation could span more than one of the several categories.

We identified the following categories of *related reader* annotation:

N = **noun** (the reader relates by a role perspective)
A = **action** (the reader relates by an action perspective)
K = **knowledge** (the reader relates by what they know)

S = **story like** (the reader starts to tell their own story in response)
R = **reflection** (the reader reflects on the story)
" = **ditto** (the reader relates to more than one story in the same way)

Just on this attribute alone we can envisage how a collection of stories might be structured so as to reflect the degree of relatedness and the kinds of relatedness readers express. If we care about the size and navigation of a collection, then stories that trigger *stories* from their readers are particularly valuable because they offer a means of enlarging the collection and building branching cause-effect pathways. Other categories of reader relatedness also look very promising. Stories that elicit *knowledge* or generate *reflective* responses might be organised in educationally beneficial ways. A collection of stories that provoke *action* responses might even assist in the sharing of tacit knowledge, or connecting relevant knowledge between real world contexts.

10.7.6 – Process data

The attribute value data revealed a lot about annotation choices, but nothing about annotation *process*, except what could be gleaned from the data that was written to file regarding lengths of time spent on various task parts, e.g. whether they had entered Phase 4 and whether they had changed any of their Phase 1 suggestions during Phase 4. Bearing in mind that a participant might spend anything from under three quarters of an hour to over three hours completing the task, a great deal of recordings data needed to be analysed. Add to that was our use of a grounded theory approach, which encourages the analyst to rid their mind of expectation, proof and disproof and to start and end with the

data which in the first place requires them to see everything before them as potential data.

In our case from an initial viewing we gradually formed a number of potential categories which with repeated viewings we could begin to describe and offer explanation for; we could also begin to merge some and partition some. Also repeated viewings increased our receptivity to new categories which too had the potential to develop in the same way. Meanwhile, early potential categories that did not develop could gradually be discarded.

One way of easing the analyses was to make a fairly artificial separation of the task and user interface data. In allowing this we reasoned that we had made three basic design choices: the annotation schema and how it fits into the model, the task structure and the task user interface. Early viewings showed that certain kinds of categories arose from people's interaction with the schema, the stories and the task as a whole. Meanwhile, other kinds of categories arose from the user interface design. We soon realised that the user interface could encourage or discourage participant involvement in the task and affect the quality of their annotation. We also decided that because the user interface merely facilitates, we were primarily interested in what it facilitates: participants' annotation of the stories, their interaction and appreciation of those stories and their attitude towards the task generally. Other categories that had more specifically to do with the user interface were thus treated separately, with the data analysis presented in a technical report (Kwiat, 2009).

10.7.7 – User interface considerations for story annotation

The user interface navigation data shows participants' navigation through the task. Most participants did not stray far from the shortest route which was to activate 'next' on each Phase 1 screen until reaching the last screen where they activate 'save now'. The alternative was to activate 'back' and 'save later'. That some participants, and some more than others, choose to go 'back' suggests that they may prefer to see all the indexical attributes together on the same screen. As well as encouraging annotators to select for annotation the attributes they choose in the order they choose, it would better facilitate the transposition and reuse of suggestions that we discovered in Chapter 7.

Rarely did participants follow the link to the *guide* without any assistance or prompting from the mediator. The *guide* was only accessible from the *main screen* which meant that every time a participant wanted to use it they had to navigate backwards to the *main screen*; then after viewing the *guide* they had to navigate forwards to the screen they had initially left which meant they had to keep in mind which screen it was. Since the *guide* contains attribute definitions, and since each definition also appears alongside the relevant attribute on the relevant screen, immediate access to it, e.g. via 'what's this?' might be one way of reducing the amount of explanatory text on each screen.

The phased structure of the task was understood and phase boundaries were recognised by participants who nevertheless often had difficulty because the entry points were obscure, and this tended to interrupt task flow. It certainly appears that conventional style user interface buttons are not as obvious as hyperlink style buttons.

What seemed to work well on the *main screen* was the ordered list of story titles. Although participants didn't explicitly recognise these numbered sentences as being story titles neither did they query their function. After having returned to the *main screen* after the reading phase they would often use these titles as memory triggers for the stories they had just read and would clearly be planning which titles to relate in preparation for the next phase.

On the annotation screens, another thing that seemed to work well was having the story always on view because annotators were clearly put at ease once they understood that they did not have to memorise a story's content. However, it may be due to the fact that participants were thereby able to make frequent evident returns to the text that they were not as spontaneous in their suggestions as they might have been.

Different attribute types offer different methods of annotation. Attributes that carry editor suggestions can be agreed with. Some participants wanted to explicitly disagree, a facility they were not provided with. Other participants did not at first understand 'promote' and 'demote' but would nevertheless use them and express satisfaction with the results. The prominence of the editor's suggestions meant that participants would look at these first before considering other annotation choices. A disadvantage of this is that it made some annotators feel that the editor's suggestions must somehow be correct even if they were not in agreement with them. On the other hand, it gave a clear indication of how the weighting of annotators' suggestions would operate most

successfully: by giving maximum visibility to previous annotations. In contrast, Session 2 participants made far less use of Session 1 participants' annotations and this we believe is because they were hidden from view until and unless the annotator chose to bring them into view.

For those attributes that offered menu selection in addition to editor agreement, the menus were positioned so that they were the next method of input after that of editor agreement. However, the two kinds of menu behaved inconsistently; narratological terms offered definitions but medical terms did not. Then for the narratological menus it was not sufficiently clear that definitions were available and how they could be accessed, nor was it clear how to select them. Medical terms could be selected just by highlighting, narratological terms needed to be ticked, i.e. checked. The only way an annotator could know for sure whether they had selected a particular term from a menu was for them to move their gaze away from the menu and towards another object on the screen: a list box containing all their suggestions for the attribute under consideration.

This list box also proved problematic on occasions where an annotator on seeing the accumulation of suggestions in it would ask what they were, therefore not immediately recognising them as their own.

Aside from making the menus behave more consistently, several things might have been done to provide better feedback to annotators of their actions. Firstly, to locate the results as close as possible to the source of their actions; difficult when, like here, there

are several sources. Secondly, to do as we did for the story-story relations in Phase 3, to cut and paste rather than copy and paste from the source field to the results field. We now know however, that annotators change their mind about their suggestions and this means that everything aside from free text input must be designed to remember where to return to return should this happen.

The only method of input that was always available on every attribute was free text. For those attributes that allowed multiple free text suggestions an 'add' button was provided but even so, some annotators needed to be reminded that the function of the button was to free up the input field for another suggestion. Once understood, this method of suggestion was very successful. The length of the input field was meant as a guide to the probable length of these free text suggestions. The *point* fields permitted sentence lengths, as did the *related story* field. All others were designed to encourage nothing more than a short phrases. We are pleased to say that generally participants did not limit themselves in this way and as we saw in Chapter 7, the *related reader* attribute in particular drew from some annotators, suggestions that surpassed all expectation.

We wondered earlier whether a single annotation screen for the indexical attributes would have been better than a series of screens. For the Phase 3 annotation however, only one screen was used and that presented its own problems. Once their attention was captured by the *related story* attribute, annotators routinely forgot the *related reader* attribute and would need reminding of it. That was a pity since as we remarked, when

they did consider this attribute and once they understood what it meant to be a related

reader, the quality of input was generally good.

For the *related story* attribute annotators keen to suggest a relation between the pair of

stories in view would often need assistance because provision to relate was evidently not

clear to them. Once made moreover, the relation was retrievable but not obviously so

owing to the disassociation between the text field containing the reader's explanation, the

shrinking list of stories thus far unrelated and the expanding list of stories that they have

related. On this screen, disassociation between the various user interface objects is

greater than for any of the indexical attribute screens.

To sum up our main findings from both Chapter 7 analyses and the separated out user

interface data: the annotations participants made are plentiful and of extraordinarily good

quality; this is despite the evident design flaws in the user interface. It suggests that once

these are rectified, the annotations would be better yet.

10.7.8 – Quantifiable process data

In Chapters 8 and 9 we were more concerned with annotation behaviours than how the

user interface technically influences those behaviours. Also, departing from Chapter 7,

we were less concerned with results data per se and more with the process: the audio-

video recordings capturing participants' actions in the context of a particular attribute,

story or task part. However, even the recordings data allows a certain amount of

quantitative analysis and so we partitioned our discussion so that Chapter 8 concentrated on the quantitative and Chapter 9 concentrated on the qualitative analyses.

In Chapter 8 we brought together the questionnaire ratings data and methods participants chose regarding the annotation of each attribute for each of the stories that they annotated. These graphs are informative but inconclusive owing to the number of variables: we would probably have to quadruple the number of participants before we would feel able to make conclusions. There were, as we have said, differences in the way attributes were presented and could be annotated. Another variable was story type, by which we mean the kind of discussion threads stories were drawn from. Others were story, screen (task part) and attribute complexity, and for these we devised rankings based on the relative number of returns to the text participants made.

A factor of story complexity we discovered is embedding, the containment of one story within another, especially where the style of narration of these respective stories differs.

10.7.9 – Complexity of the annotation scheme elements

Both attribute and screen complexity rankings place *feature* as requiring most frequent returns to the text; a surprising finding since this attribute, more than any other, was designed to provoke a spontaneous rather than intellectual response and the user interface guidance advised participants to treat it in this way. The *audience* attribute and the *Narrator & Audience* screen ranked as least complex. The *Relate* screen and the *related*

story attribute both ranked as relatively complex but the *related reader* attribute ranked as relatively noncomplex. We could say that according to design, the *related reader* attribute is approached spontaneously whereas the *related story* attribute requires a comparative judgement, if it weren't for the fact that many participants rated *related reader* as 'difficult' on the questionnaire. In terms of time durations, participants spent over twice as long on the *Relate* screen than they did on either the *Feature* or the *Narrator & Audience* screen.

Perhaps the greatest variable was the participants themselves; they were all highly individual. The Health Care professionals were broadly made up of GPs, Nurses with various specialities, and Pharmacists. The nationalities, and therefore healthcare experiences, of the Knowledge Media researchers were also quite different.

10.7.10 – Characterising the process of story annotation

Chapter 9 was divided into three distinct areas of enquiry: annotation, story and task. In each of these we were concerned with what participants said and did with regard to that area. Our Grounded Theory method generated a huge quantity of data and therefore we have retained just an example incident from each category comprising each of the three areas in the chapter itself and have presented the rest in the fore mentioned technical report.

The largest area by far is the annotation categories. These range from the first group of categories to emerge: **(A1) The formulation of free-input values**, in particular the categories concerned with ease and difficulty of annotation, to the last group of categories to emerge: **(A23) The identification of story-story relations**, in particular the category that provides a trace of each annotator's movements as they prepare to make a relationship.

For the annotation categories especially, it is relatively unusual for a particular behaviour to occur by itself; more usually it is accompanied by other behaviours. Quite late in our analyses we decided to show co-occurring behaviours but to show them only to a point. Co-occurrence is shown if it helps to build a context for the behaviour under consideration. It is not shown if it somehow detracts from the context either because it is anyway implied by the behaviour under consideration or it is merely coincidental with it, especially if it is one that appears contradictory to the behaviour under consideration, i.e. it is suggestive of a completely different context. Of course all of these secondary behaviours, whether or not they are shown as co-occurring can be found in their own respective categories with the recordings clip durations alongside. The obvious way to provide contexts for participants' behaviours is to quote their speech while they are demonstrating that behaviour. The decision to show co-occurring behaviours enabled us to replace quotes that would otherwise be duplicated elsewhere with the name of the co-occurring category; i.e. the category name is enough to show what participants are or might be saying.

It is not until the recordings are played that one can really appreciate the care and attention participants put into story annotation and the effort required. For example, we can see by the immediacy of response something of how instinctive participants can be in their suggestions and by their long pauses something of the difficulty they experience with other suggestions. We can see them changing their minds, shifting their attention between attributes or from attribute to story and from one story to another. There were a number of rewarding categories in this section but in terms of our model, perhaps the most interesting of these are **(A6) "For me it's X" or similar i.e. the participant announces a personal perspective** and **(A11) Creative and unusual input value types** as these showed participants feeling unrestrained and doing what they wanted to do. Most noticeable was participants' imaginative suggestions. Rather than just repeating words and phrases that appeared in the physical text they would create their own text, sometimes explaining their reasons for this: whether to fill perceived gaps, to make more intelligible and so on. The reworked story would then provide the source of their suggestions.

Although we chose to allow participants to speak or to remain silent if they wished, they generally wanted to speak and would tend to speak more as the task progressed. The more they spoke the more we were able to learn about their annotation and their approach to the task. This was especially true in the case of the story categories. There were several ways in which participants responded to individual stories: *humour*, *pity*, *anger*, *surprise*, *puzzlement*, *interest*, even *disinterest*. Often they would respond in a combination of these ways. The most rewarding category from the point of view of our

model was **(S2.6) Telling verbally, their own story in response** because it shows how easily participants will slip into story mode. As they are reading or annotating one story or whilst considering a group of stories they will often start to tell a story of their own: stories trigger stories.

The task categories collect all those behaviours that have to do with the task rather than particular annotations or particular stories. A sizable part of this section is taken up with the category **(T2.1) Expressing concern** and in particular **(T2.1.1) How do I?** and **(T2.1.2) What do I?** These behaviours point back to the concerns we had regarding user interfaces acting as barrier to rather than as enablers of story involvement and to the desirability of a user interface that immediately provided answers to such questions before they had a chance to be asked. The kind of user interface, that is, that promotes involvement and interaction with the stories. The category **(T2.3) Expressing confidence** is more optimistic because it shows where the user interface was not a barrier and where participants felt self assured rather than doubtful about what they were doing.

10.7.11 – Viability of the story annotation schema

On no occasion did participants provide evidence that important attributes were missing from the schema. We can take from this as a degree of reassurance that the schema is expressive enough, although we note that participants may have simply been cognitively loaded with the task at hand and did not have capacity to critique the schema as well.

What is most encouraging about the data from Study 2 is that no participant left the task incomplete either by abandoning early or by deliberately omitting parts they found difficult, except in some cases, *related reader*, where the attribute appeared too vague in its description and insufficient guidance was offered by the user interface to elicit the variety of kinds of responses that other participants gave.

That some participants indicated a degree of discomfort performing the task is of only minor concern because these very same people indicated that they nonetheless engaged with the stories, and that for us is what is most important. If there hadn't been such obvious story engagement then the research would stop here because it would cast doubt on whether any self-sustaining resource model would succeed beyond the research stage.

In this regard, there was never a suggestion that the texts were anything other than stories. This means that Gabriel's criteria certainly provide sufficiency even for texts that have been removed from their origin of telling. However, it is still unknown whether less qualifying texts would also be judged as stories, i.e. those with point but lacking in other dimensions. There is no doubt that some of the twelve stories in the current study have provoked story responses from several readers who either began to narrate orally or via the *related reader* field. Extending the user interface to enable user generated stories is an obvious candidate for future research.

Thus far we have learned that annotation and storytelling are in fact two sides of the same coin. The story invites a story response and its annotation invites embroidery work.

We saw this creative process time and again. It was firstly very evident on the indexical attributes where participants only needed to consider one story at a time. We saw it again during the reading phase where some participants expressed disappointment at not being permitted to annotate. It was also evident on the relational attributes. When considering the *related story* attribute, participants will weave stories together as one.

The objective of this thesis and of Study 2 in particular was to discover whether by concentrating on the individual's responses to particular stories and the narratological and relational dimensions of those stories, the resource potential of story collections is realizable. The reason for not explaining much about this to participants in Study 2 was the fear that instead of interacting with the stories in the ways that the medium ordinarily allows, i.e. in spontaneous, individual and receptive ways, they may have felt a pressure of expectation that their suggestions should conform to what they wrongly perceived to be a classification problem.

The argument made from the beginning has been that narrative offers perhaps the only way, of communicating knowledge of a certain kind, that if abstraction were applied potency and meaning would be lost. The simple extension to this argument is that the reintroduction of abstraction as a means of organising narrative collections does not follow: it cannot be argued on the one hand that it is inappropriate at the instance level yet can still be effective at the collective level. Instead we argue that to provide users with meaningful paths into a large storybase, it is necessary to understand and accept the

uniqueness and individuality of the stories comprising it, but that it has been possible to devise an abstract structure for annotation which recognises this.

10.8 – Methodological issues

10.8.1 – Methodological choice for interface evaluation

As we have noted, the social web is making mass annotation an increasingly familiar concept, although at present this extends now further than the assignment of single-string keyword tags. The focus of the second part of the research was to characterise how users make sense of a new kind of software tool aimed at (i) much richer forms of annotation, (ii) professional knowledge sharing via story. This motivated the use of detailed interaction analyses of the prototype user interface to describe how users, in a laboratory setting, make sense of the software tool.

This approach to the problem is distinctive, and complementary, to other user-centred design methods that could have been used. "Low fidelity" user interface storyboards with pen and paper are a powerful technique for participatory design, giving permission to users to critique and change designs because it is clear that they are not fully developed. Our feasibility study used precisely this technique, demonstrating that participants engaged with the stories, and managed to annotate them even when stories and their attributes were presented in a rather bland way. It was this pilot, in combination with the Study 1 analysis of GPs online, that provided us with the

confidence to move to the more detailed Study 2 prototype, in which a functioning user interface provided a deeper level of engagement for users, and allowed us to investigate the narrative annotation model in more detail.

Another approach, particularly given the rise of the social web precisely over the period of this thesis, would have been to develop a public story website. This is the next logical step in developing the proposed storybase infrastructure, but methodologically, this was not the most appropriate approach to take in this research. Seeding a public website with a significant number of suitably anonymised stories in order to evaluate large scale annotation would have been a significant task, and that story database was not readily available. A website would have provided standard user data logs, but would also have required specific instrumentation to show the specific data that we needed to gather.

We chose not to do this because we wanted process as well as product information, and we know from Chapter 7 that the results data logs, though extremely valuable, in themselves raise questions as to how and why they came to be. User questionnaires are often used to evaluate websites, but we have pointed to the discrepancies between what participants indicated on the questionnaire and how they performed in the task. In summary, even were a credible public website to be developed (with the design and maintenance overheads associated with that level of exposure), a primary research question was focused on gathering detailed *process* data, to illuminate the data logs and questionnaire data. Together, these provide a detailed account of how users experience and make sense of a storybase offering richer forms of annotation.

10.8.2 – Degree of structure in the experimental task

Our justification for not instructing participants to explain their actions or "think out loud" was because we felt it important to minimise their anxiety, and so we chose instead to encourage them to talk if and when they wanted to. However, with hindsight we would have requested participants to move the mouse pointer to the region of the screen they were attending to at any one time. Analyses of the recordings data showed that Knowledge Media researchers do this anyway: they tend to treat the mouse pointer as an extension of their index finger (Winograd and Flores, 1986). Because the Health Care professionals tended to restrict their use of the mouse to state change operations, we could only guess at what they were attending to in between those operations.

In terms of user interface design, Study 2 has made us very aware of the tradeoffs between using structured and unstructured task user interfaces; also, between flexible and rigid annotation provision. The design of Study 2 involved a lot of compromises in these respects and it is for this reason that we were interested to know from the questionnaire the degree of restriction participants felt.

An unstructured task user interface allows the user to navigate where and when they want to. If for example, the task had not been phased, and the stories had not been partitioned into sets, participants would be able to choose exactly which stories to annotate, which ones to read, and they could perform these two activities in an ordered or disordered way. From that we would have learned more regarding relative popularities of stories and attributes. The imposition of structure and rules on the other hand, enables us to state

that all participants were able to annotate each of the stories they were presented with and that all the stories received equally high quality annotation. In other words, annotation ability and annotation quality are not dependent on annotators' preferences which therefore suggests that story annotation is not particularly difficult.

We feel that there were several disadvantages as well as advantages in providing the kind of annotation flexibility that Study 2 gave. In order to demonstrate choice, the user must be aware of it and to know how to operate it. In the sense that the user has more operations to remember, flexible annotation provision can increase the operational complexity of the task. In terms of cognitive function too, it can make annotation more complex in the sense that the user must exercise choice. Looked at another way, limited annotation provision can be said to cause the annotator to think harder about what they can do within the limits they have been set. For the analyst, a disadvantage of flexible annotation provision is that even from the recordings data it is not always obvious whether a participant has actually made a choice, conscious or unconscious, or whether they were even aware of the choices available to them.

An important advantage of restricted annotation provision is that it would have enabled better and more conclusive quantitative analyses.

We would like to comment briefly on what we now regard as the mistake of using standard user interface widgets to assess a fairly complex model because we now appreciate the extent to which the user interface can influence the data. There was some

impatience to complete the building of the user interface in order to begin what we perceived to be the principal task of collecting the data. Our assumption in using grounded methods was that data capture issues are somehow separate but because we now know what those issues are we know that this is not so. If participants were plentiful we could have, on picking up certain apparent design flaws, rectified them and started again. On the other hand, we also realise after 24 participants that what some participants had difficulty with, others found easy and so what classifies as a design flaw for one may classify as a success for another.

10.9 – Future research

10.9.1 – Generalisation to other domains

One measure of the viability of this approach is if the findings, and proposed narrative annotation schema, generalise to other domains beyond health care. This will validate whether our choice of narratological attributes was correct, and whether other professions are similarly rich in stories.

For example, the author's current work in the domain of social care indicates that there is significant potential. Social care, like health care, is person-centred, and in such field, tensions are set up when departments must rewrite procedures to comply with legislative changes, the implications and effects of which have yet to be understood. Procedures are necessarily abstract and decontextualised, in contrast with the unique factors that define

situated practice. As noted in our literature analysis, it is here that the story as a form of encoded experience may have a powerful role to play in professional knowledge sharing. Social workers in the field are faced with situations where they are required to make judgements for which they feel ill equipped, there being no evidence base on which to draw. How does one begin to build a much needed resource that will guide, inform and improve practice in this unchartered territory? The idea of story-making and annotating via an appropriate infrastructure has great potential, but needs to be tested empirically.

10.9.1.1 – Statistical analysis

It will be recalled from Chapter 7 that because of the small population sizes, we were rather tentative regarding the suggestion of statistical difference between the two groups in the methods they used to annotate stories. However, we recommend that before generalising to other domains some more statistical analysis is done using larger groups and a greater number of them.

10.9.2 – Encouraging story telling as well as annotation

We discussed how users would often respond to a story with a story of their own. Having come this far, perhaps the most important avenue for future research is story capture, by which we mean the committing to text, of stories as well as provision to annotate them. If an engaged reader is given authoring facilities, would they use them?

How spontaneous would they be? What measure of enticement would be necessary to ensure that the collection would grow and continue to offer new, good quality material?

We have said that our set of attributes, although chosen with great care, was not considered to be necessarily sufficient or correct. Indeed we can conceive of different schemas entirely which might perform equally well or better in a generic story-making environment. It might be instructive, therefore, to see how by keeping the design of the user interface and task structure constant, different schemas compare in terms of ease of annotation and so on.

However, the type of future research we would prefer to engage in at this point would relax completely on task structure and vary the user interface so as to find the most effortless and productive ways of annotating stories using schemas similar to the one used in Study 2. Also, now knowing that annotation and storytelling are symbiotic activities, we would want to engage in research that encourages story telling.

10.9.3 – Investigating complementarity in attribute pairs

Another avenue of research also utilising the Study 2 schema is attribute complementarity. We can now say with some confidence that there are, in this schema, certain attribute groups which display it. These are [*main point* and *other point*]; [*protagonist* and *other character*]; [*characters* and *audience*] and [*related story* and *related reader*].

What we mean by complementarity is that if an incomplete complement set is offered, the annotator would experience greater difficulty in deciding which choices to make than if the complete complement set is offered. We saw from the recordings data in Study 2 that annotators on being asked for the first time to suggest a *main point* for the first story in their story set will say that it is impossible to do without reference to that story's *other points*. Once they understand that they can make suggestions for these too, the immediate dilemma is removed, although it was sometimes remarked that their perspective may change on another reading. Notice that the two kinds of story points are not in opposition.

Likewise, we suggest that [*protagonist* and *other character*] is a complement set but that *protagonist* and *antagonist* is not; it may be that opposition attributes are least important for story mark up and this may be because they do not feature in complement sets. A complement set suggested by analyses of the results data was [*character* and *audience*]. Here we found that participants' *audience* suggestions were often the same as their *character* suggestions, whether *protagonist*, *antagonist* or *other character*. We predict that a schema that did not include a *character* dimension would make *audience* suggestion more difficult.

Fairly late in our analyses of the recordings data we found a fourth complementarity set to be [*related reader* and *related story*]; here we observed some participants moving between these attributes and learned that for some it was possible to suggest ways in

which they related as reader to the focal story only after they had related the focal story to various non-focal stories in the collection. It may be that these participants were relating as reader to more than just the focal story.

10.9.4 – Exploiting emergent social indexing paradigms and user interfaces

There are existing web-based tools and their increasing popularity suggests these would be an obvious vehicle for further research. Although, in operational terms, we regard the tools as rather primitive, folksonomy and folksonomic tagging as concepts are not actually very different from our own. The folksonomy is a socially constructed ontology and folksonomic tagging is where that ontology is used to label web page content. In combination they can be made to deliver the properties we demand of our model: non-restriction of input, self-organisation of objects, multi-aspect views and so on. The tag cloud, usually attached to a web object can just as easily attach to a dimension of our schema: a dense cloud shows people agreeing on how they describe that dimension; a diffuse cloud shows people disagreeing on how they describe it; a sparse cloud shows a dimension that few people care to describe. We predict that an annotation tool implemented in tagging software would be readily accepted by users who already understand it and would know to expect immediate feedback from their input such as tag clouds physically changing shape and position before them which is more expressive than anything we have been able to achieve thus far.

10.9.5 – Story clustering and recommendation engine

Although beyond the scope of this thesis, if a storybase of the sort envisaged proved successful with large scale publication and annotation of stories, there is intriguing potential for algorithms to connect, cluster and recommend "related stories", using the rich set of attributes in the annotation schema. A recommendation engine grounded in a theory of story has yet to be developed, but could operate in a manner analogous to the intelligence beginning to appear in e-business and social content Web platforms, which recommend resources of potential interest, based on what is currently being viewed, or the user's unique interest profile and browsing history.

Our analysis of user behaviour suggests that one factor that needs to be considered in the design of an annotation weighting system is people's instinct not to explicitly record their agreement with previous annotators or to regard such agreement as superfluous. The effects of agreement and the non-effects of passivity must therefore be made very visible to them.

Another factor from our research is the possibility that people will employ different annotation behaviours depending on the annotation facility. It may be that annotators when viewing one source of suggestions will be spontaneous in their responses but when viewing another will deliberate. There was some evidence of this in the recordings data where annotators appeared to treat the editor's suggestions more spontaneously than menu terms.

The strategies identified all have implications for any model. An overly analytical approach can deter the annotator from suggesting anything that might deviate from what is in the text itself or what is in the author's (editor's in the present study) annotation. An overly spontaneous approach can, if the annotator does not appreciate the weighting function, deter them from agreeing with existing suggestions. Similarly, an overly individual approach can result in suggestions that are operationally distinct from existing suggestions that the annotator might otherwise have agreed with. We found a wide range of user behaviours in Study 2, which reflects well on our objective of devising an annotation schema that was both engaging and permitted interpretive diversity, but this also presents challenges for future research into semantic similarity analysis.

10.10 - Conclusion

This thesis has been long in the making, and inevitably, technology related research such as ours must track a moving target. In this case it is the emergence of the social web, which when we set out was unknown. In contrast, this thesis has been working with one of the most enduring forms of human communication, narrative, which is distinguished by very particular structural patterns, also enduring. Our challenge has been to blend the old with the new, in the quest for a coherent usable representational structure for digital story-making and annotation.

In conclusion, we are encouraged not only by the fact that this work opens up numerous avenues for taking forward digital story-making research, but that those opportunities can

now be explored within the paradigm of the social, semantic web. What was hitherto only conceptual, and perhaps strange, has thereby been made more familiar and expected. As this thesis has argued, the prospect of web media injecting new energy into story-making as a form of professional knowledge exchange and negotiation is a development to be welcomed.

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