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Applying systemic functional linguistics in healthcare contexts

Abstract: This paper is concerned with research on healthcare communication that draws on Halliday's systemic functional linguistics (SFL). Section 1 introduces Halliday's notion of applicable linguistics, with SFL as a particular manifestation. Section 2 deals with instances of healthcare communication in the form of medical consultations, and shows how they can be illuminated through SF text analysis. Section 3 relates medical consultations to institutions of healthcare along two dimensions, stratification and instantiation; and it suggests that institutions can be analyzed as aggregates of situation types. Section 4 considers the field of activity within healthcare contexts, suggesting how texts in situation types characterized by different fields complement one another. Section 5 adds tenor considerations in the form of the institutional healthcare roles across fields. Section 6 explores patient journeys through hospitals as sequences of situation types. Section 7 asks how risks and failures inherent in patient journeys can be interpreted, and then analyzed and addressed, in terms of the orders of systems in a hospital. Section 8 continues this systemic analysis, applying them to patients, and Section 9 extends the analysis to healthcare systems, as semo-technical systems. Section 10 shows how relationship-centered healthcare can be interpreted in terms of SFL.

Keywords: applicable linguistics; systemic functional linguistics; healthcare communication; institutional linguistics; medical discourse

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1 Introduction: texts

As an applicable kind of linguistics (see Halliday 2007), systemic functional linguistics (SFL) has been developed to have the theoretical and descriptive resources to empower researchers to undertake projects of investigation and intervention in many contexts that are critical to the workings of communities and the quality of human life. Here I will be concerned with contexts of healthcare. Drawing on two

research projects directed by Di Slade and concerned with communication in emergency departments of large hospitals, the EDCOM (Emergency Department Communication) Project in Australia (see Slade et al. 2011, for the final report), and a current project based in Hong Kong – now within our International Research Centre for Communication in Healthcare at The Hong Kong Polytechnic University and University of Technology Sydney – I will explore how we can apply aspects of SFL to the study of contexts of healthcare.¹

Language enters into healthcare both (i) as *medical symptom* and (ii) as *healthcare resource*, and both have been the focus of investigations and interventions in SFL. Here I will be concerned with the second of the two, language as medical (or healthcare) resource, drawing on the research projects mentioned above. From this perspective, language plays a key role in a wide range of situation types – a role that has often been studied under headings such as “healthcare communication” and “medical discourse” (e.g., Kuipers 1989; Fleischman 2001; Wilce 2009).

Such contexts include consultations in the emergency departments of hospitals, as in the following example involving a (female) doctor and a (female) patient (see Text [1]).

(1) Extract from a doctor–patient consultation in the emergency department of an Australian hospital (the EDCOM project)

Doctor 1: Okay. Um, my name’s [name removed]; I’m one of the doctors here. Wow, what happened?

Patient: I was washing up; I was clearing the sink this morning {Doctor 1: Yes.} and there was a very fine glass – you know Bodum, they make very fine glass? –

Doctor 1: Ah-ha. Yes, yes.

Patient: – and it just seemed to break in my . . . {Doctor 1: Okay.} . . . in my finger. I was, um – so it seemed to be quite deep, the cut {Doctor 1: Alright.} and it’s sort of, you know, had it . . .

¹ I am very grateful to both research teams for all the insights I have gained from them in the course of the research. The EDCOM team, which was large, is identified in Slade et al. (2008) and Slade et al. (2011); it was funded by the Australian Research Council. The members of our current research team based at the Hong Kong Polytechnic University are Elaine Espindola, Andy Fung, Marvin Lam, Jack Pun, Di Slade, Kazuhiro Teruya, and Francisco Veloso. This project is funded by a Faculty of Humanities research grant. I am also grateful to two anonymous reviewers for comments on an earlier version of this article, and to Geoff Thompson for his generous help in editing the manuscript, reducing it to a manageable length.

- Doctor 1: When was the last time you had a tetanus shot?
Patient: Look, I think I had one in the last 12 months.
Doctor 1: Okay. Are you sure?
Patient: Well, I cut myself just . . . I was, okay, cutting a leg of ham at home {Doctor 1: Yep.} and I sliced a knuckle, so I'm pretty sure . . . I came here.
Doctor 1: Ah-ha. And you came here?
Patient: I did, yes.
Doctor 1: Okay. Can you feel me touch you there?
Patient: I can, yes.
Doctor 1: Yeah? There?
Patient: Yes, yes.
Doctor 1: Good. And do you think any glass got into it?
Patient: I don't think so.
Doctor 1: Okay.
Patient: I just – break into many pieces, the glass, it was . . .
Doctor 1: Okay. Keep pushing on that. What we might . . . what we'll do is we'll get an X-ray of that finger to see if there's any glass in there, which I doubt there will be. You know, the thing is whether you need a stitch or not. I don't think so; I think we can probably do that with a bit of a glue, or even just pressure. It's not a very deep cut into the actual finger pulp. You've just sliced . . .
Patient: It's sliced.
Doctor 1: Yeah. Yeah, not . . . um, and yeah, and a little bit of from there. Any other medical problems that you're = = aware of?
Patient: = = Not really. Um, just with the work I do, is there a waterproof dressing you could . . . ?
[. . .]

Doctor–patient consultations are, of course, quite central in healthcare, which is reflected in the extensive literature on communication in such contexts; but there are numerous other healthcare contexts. What they all have in common is that *text* plays a central role in such contexts, either *constituting* them (as in a text book for nursing students) or *facilitating* them (as in the performance of surgery); even in an operating theatre, language and other semiotic systems are central to the success of the performance of surgery (e.g., Pettinari 1988; Cartmill et al. 2007). Consequently, text analysis is essential to the application of SFL to contexts of healthcare.

2 Text analysis

SFL has been concerned with text from the start, and with the systematic analyses of texts based on comprehensive descriptions of the systems that lie behind them: the need for descriptions that can support text analysis was one of the key points in Halliday's (1964) attempt to create academic space for different approaches to language concerned with different "consumers" or community needs.

At that time, Halliday and his colleagues had already started to develop the descriptions of the lexicogrammar of English and of the prosodic part of the phonology that are now part of the resources used in text analysis (e.g., Halliday and Greaves 2008; Halliday and Hasan 1976; Halliday's *Introduction to Functional Grammar* (from 1985 onwards; Halliday and Matthiessen 2004, forthcoming; Matthiessen 1995). Thus there are many examples of the grammatical and prosodic analysis of text (see, e.g., Halliday 2003). Among other things, these make it possible to analyze how the patient construes her experience of the accident in dialogue with a nurse (not part of the extract in Text [1]) and with the doctor in Text (1) (see Table 1).

These are patterns within the experiential resources of language. While most attention has probably been given to the interpersonal resources of language in the analysis of texts in healthcare (cf. comments below in Section 3), the question of how patients and healthcare professionals construe experiences of health and illness is also central to healthcare – compare Halliday's (1998) pioneering study of the grammar of pain, and the investigations of Japanese (Hori 2006) and Greek (Lascaratou 2007) that build on it, and see Slade et al. (2008: 290–292) on the construal of disease and medical conditions.

Since the development of the foundational descriptions of lexicogrammar and prosodic phonology, there has also been systematic work on developing

Table 1: Patient's construal of accident

	"Middle" Process: 'seem to break' + Medium: 'glass' (+ Place: 'finger')	"Effective" Process: 'cut' + Agent: 'I' + Medium: 'body (part)'
To Nurse	<i>it just sort of seemed to break in the middle</i>	<i>I cut this middle finger; well I did cut my other hand; I'm always cutting myself, yeah</i>
To Doctor	<i>it just seemed to break in my finger</i>	<i>I cut myself, I was cutting a leg of ham at home, I sliced a knuckle</i>

Table 2: Interpersonal semantic analysis of two consecutive exchanges from Text (1): SPEECH FUNCTION, with grammatical realization in MOOD

Speaker	Semantics SPEECH FUNCTION TURN	ORIENTATION & COMMODITY	Lexicogrammar MOOD	Clause
Doctor:	Initiate	demand & information: question: assumptive	declarative: untagged & full	<i>And you came here?</i>
Patient:	Respond	give & information: statement	declarative & elliptical	<i>I did, yes.</i>
Doctor:	(follow-up) Initiate	demand & information: question: unbiased	(minor) interrogative: yes/no & full	<i>Okay. Can you feel me touch you there?</i>
Patient:	Respond	give & information: statement	declarative & elliptical	<i>I can, yes.</i>

semantic and contextual descriptions that can be used in text analysis (e.g., Halliday 1984; Martin 1992; Eggins and Slade 2005; Martin and White 2005; Martin and Rose 2007; Halliday and Matthiessen 2006), adding “thickness” to the analyses. Among other things, these accounts enable us to investigate the tenor of the relationship between patients and doctors and nurses (context) and how this relationship is enacted through interpersonal semantic selections in SPEECH FUNCTION and other interpersonal semantic systems, as illustrated in Table 2.

For example, there are obviously similarities between the tenor of the relationship between the doctor and the patient (the extract in Text [1]) and that between the nurse and the patient (not shown in the extract above). In both cases, the patient interacts with highly trained healthcare professionals who keep initiating exchanges with the patient, using different strategies to demand information (as illustrated in Table 2: “unbiased” questions: *Can you feel me touch you there?* – *I can, yes*, and “assumptive” questions: *And you came here?* – *I did, yes*; see Slade et al. 2008; Slade et al. 2011). However, there are at the same time important differences between doctors and nurses, also reflected in their interpersonal choices. Nurses develop empathic rapport with patients to a much higher degree than doctors (cf. Slade et al. 2008: 281). Thus when the patient from Text (1) says to a nurse *I’m always cutting myself, yeah*, the nurse makes good use of this opportunity (picking up on the patient’s self-mocking construal of herself as the Actor/Agent in processes that are harmful to herself; see Text [2]).

(2) Jocular exchange between Patient and Nurse

Patient: I'm always cutting myself, yeah.

Nurse: You are, aren't you? You really shouldn't be with sharp implements at all. (Laughs)

Patient: Yeah.

Nurse: Right. Just keep it up, my darling.

As the brief illustrations above suggest, the analysis of text is critical to the success of applications of SFL to healthcare contexts. Here it is important to note that in SFL “text” is characterized as spoken or written language and/or other semi-otic systems such as posture, gesture, and gaze functioning in context. This way of locating text within the total system of semiotic systems in context extends to multi-semiotic texts: like spoken or written texts instantiating only language, they can be defined by reference to context, more specifically to context of situation, which is important in healthcare.

3 From texts (medical consultations) to institutions (healthcare)

How do we relate the texts that we can sample as specimens in healthcare, and analyze to illuminate aspects of healthcare, to healthcare more generally? Since a text is a unit of meaning functioning in a context of situation, we can begin by drawing out the implications of its location in terms of two of the *semiotic dimensions* of the “architecture” of language in context (see, e.g., Halliday 2002; Matthiessen 2007), as shown in Figure 1: the *hierarchy of stratification* and the *cline of instantiation*.

1. Texts are related in terms of the *hierarchy of stratification* to their contexts; a text is a unit of meaning that realizes patterns in a context of situation. As a unit of meaning (semantics), it is itself realized by patterns of wording (lexicogrammar), which in turn are realized by patterns of sounding (phonology), or patterns of writing (graphology). A text can thus be analyzed (i) from its own level – semantic analysis; (ii) from above – contextual analysis; and (iii) from below – lexicogrammatical analysis; and by another step, phonological or graphological analysis (e.g., Halliday's 1996 trinocular vision).
2. At the same time, texts are related in terms of the *cline of instantiation* to the system of language; as a unit of meaning, a text instantiates the meaning potential of a language. The cline of instantiation and the hierarchy of stratification are independently variable (see Halliday's 2002 stratification–

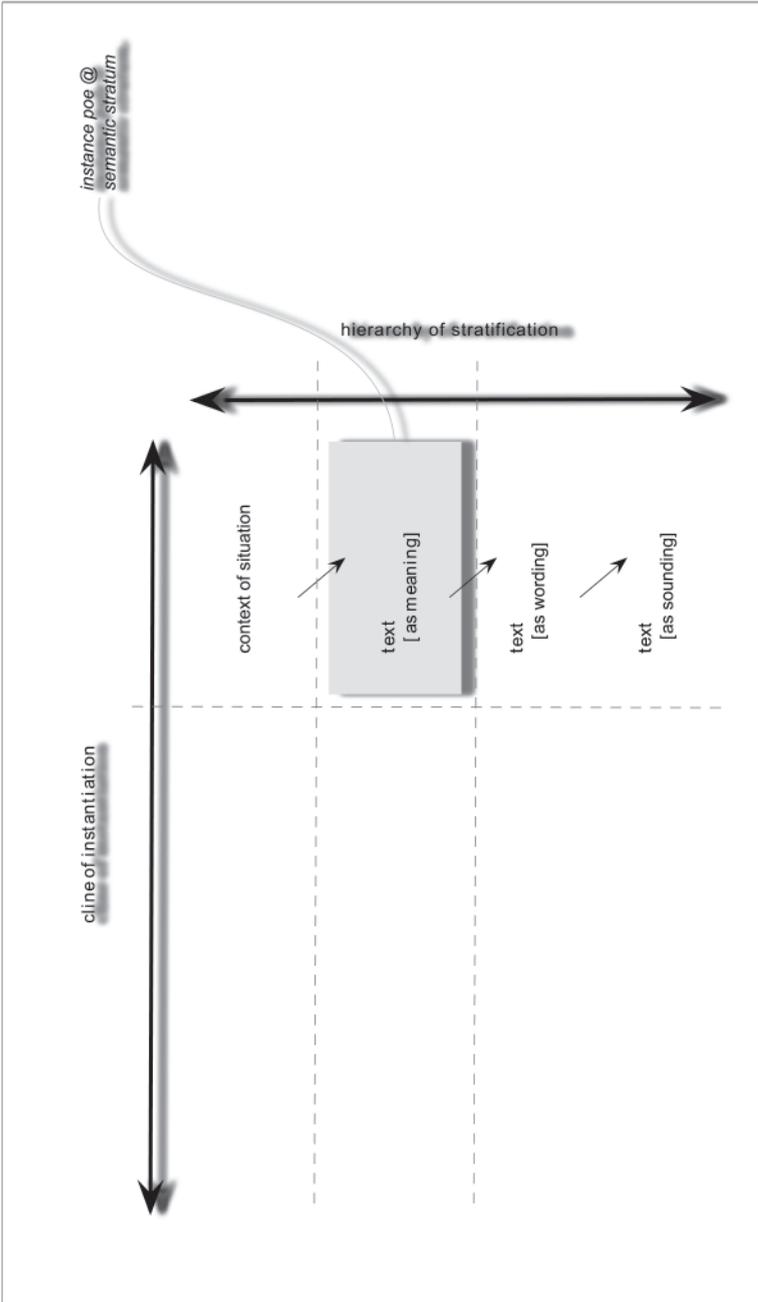


Fig. 1: Text in context of situation – located at the instance pole of the cline of instantiation and at the highest stratum of language (semantics) in a realizational series

instantiation matrix), so the cline of instantiation extends across all strata – within language, from meaning potential to text as meaning, from wording potential to text as wording, and from sounding potential to text as sounding; and within context, from context of culture to context of situation.

So coming back to the question I asked at the beginning of this section, we can see that the answer lies in a move along both of the two dimensions just discussed. By moving up along the hierarchy of stratification, we can relate the text to an instance of *healthcare as contextual concern* involving healthcare activities and people in healthcare roles; but we can only identify the context of situation of the text as belonging to healthcare by moving sideways along the cline of instantiation away from this particular instance toward recurrent patterns emerging in similar situations – patterns that we recognize as forming a recurrent type of situation, one that we might provisionally label “medical consultation.” But we need to move once more along the cline of instantiation, again in the same direction: we can recognize that a number of situation types such as those of “admission,” “medical consultation,” “medical treatment,” and “discharge” work together as an aggregate within a more inclusive and general domain of structured healthcare – the domain of the *hospital* (see Figure 2).

We can interpret a hospital in contextual terms as a *cultural institution*, more specifically as a *cultural institution of healthcare*: an example of the region intermediate between culture and situation within context. At the level of context, we can investigate healthcare as a cultural phenomenon from either of the two poles of the cline of instantiation (see Figure 3). Moving up along the cline of instantiation, we can generalize from particular texts we have been able to observe and record in their contexts of situation – text such as Text (1) above – distilling recurrent patterns in the form of statements about text types operating in situation types (see Slade et al. 2008; Slade et al. 2011).

Complementing this *inductive* move based on generalizations derived from the analysis of texts in contexts of situation, we can also move *deductively* in the other direction, starting with the potential pole of the cline of instantiation.² Here we are asking how the context of culture of a society – its overall cultural potential – is distributed into recognizable and recurrent cultural domains. These cultural domains are sub-potentials within the total cultural potential of a society; and we can interpret these cultural domains as *cultural institutions*. This is very much in

² These two moves along the cline of instantiation – the ones I have called inductive and deductive – are complementary; to me, one of the key methods of SFL is that of *shunting* along a given semiotic dimension, ensuring that one maintains a trinocular perspective (see, e.g., Halliday 1996) instead of being limited to a single vantage point as an observer.

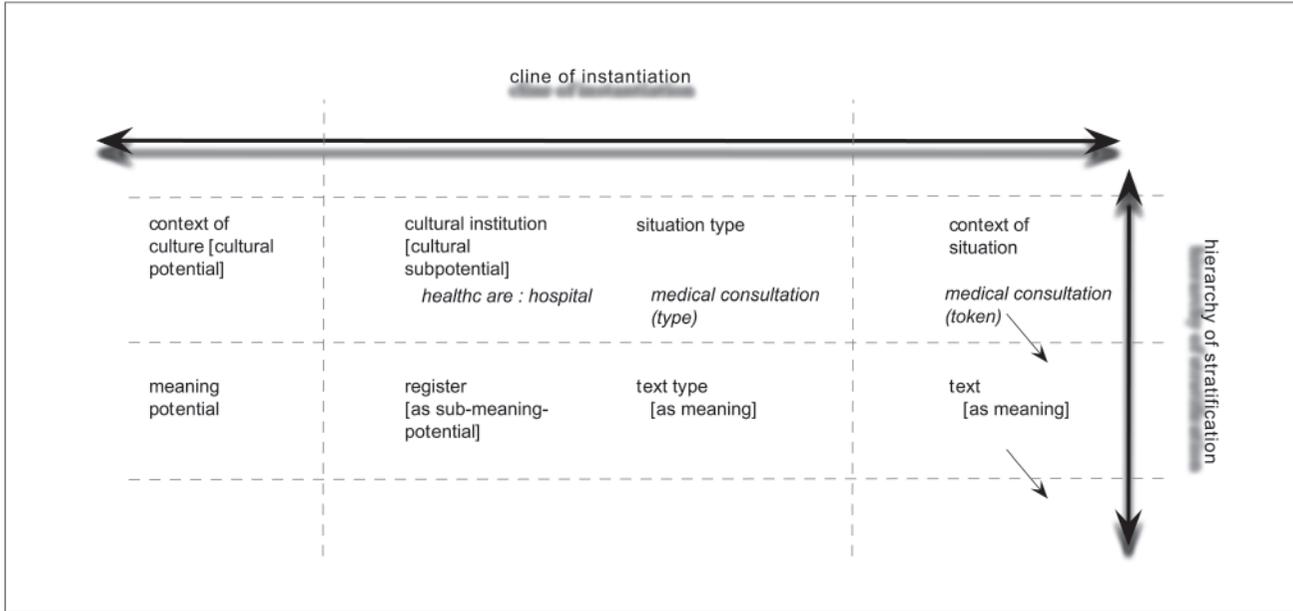


Fig. 2: Partial stratification–instantiation matrix – showing the location of a medical consultation text such as Text (1) in relation to a hospital as a cultural institution of healthcare

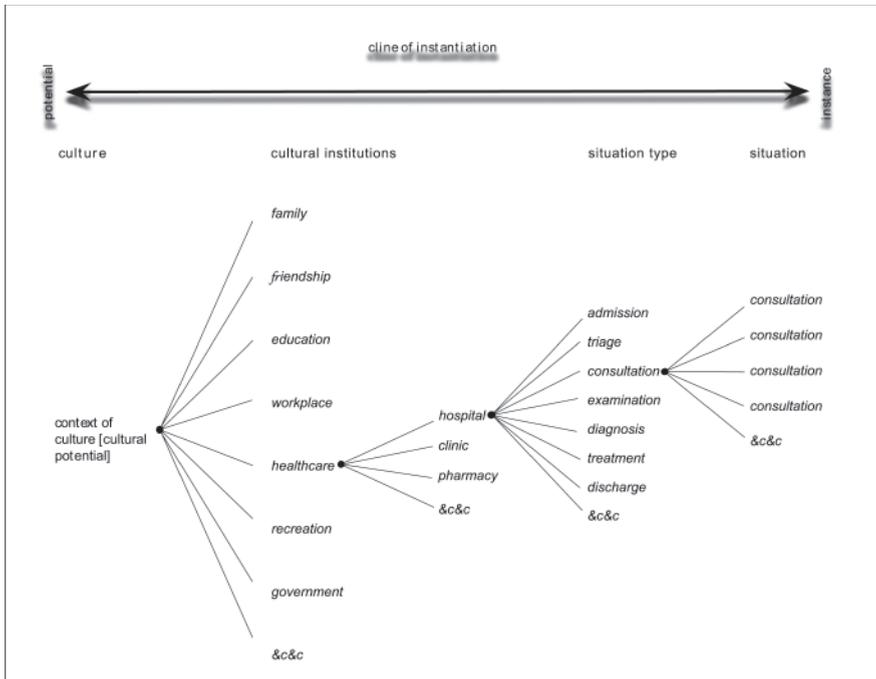


Fig. 3: Healthcare as a contextual motif extended along the cline of delicacy

keeping with Malinowski's (1944: 154–155) insight that “the institution is the real isolate of culture.” He offers a concise definition of an institution as:

a group of people united for the pursuit of simple or complex activity; always in possession of a material endowment and a technical outfit; organized on a definite legal or customary charter, linguistically formulated in myth, legend, rule, and maxim; and trained or prepared for the carrying out of its task. (Malinowski 1944: 50)

How do we model cultural institutions in general and institutions of healthcare in particular? This is a task for *institutional linguistics* (cf. Hill 1958; cf. also, e.g., Halliday 1978: 110), discussed at some length in Matthiessen (2009: Section 3.6). We can begin to flesh out the characterization of a hospital as a cultural institution by locating it along all the relevant dimensions of systemic functional theory (cf. Matthiessen 2007).

At the core of hospitals and other cultural institutions are the activities and the persons taking part in them – field and tenor in systemic functional terms (see, e.g., Halliday 1978). Thus we can interpret Malinowski's “pursuit of simple

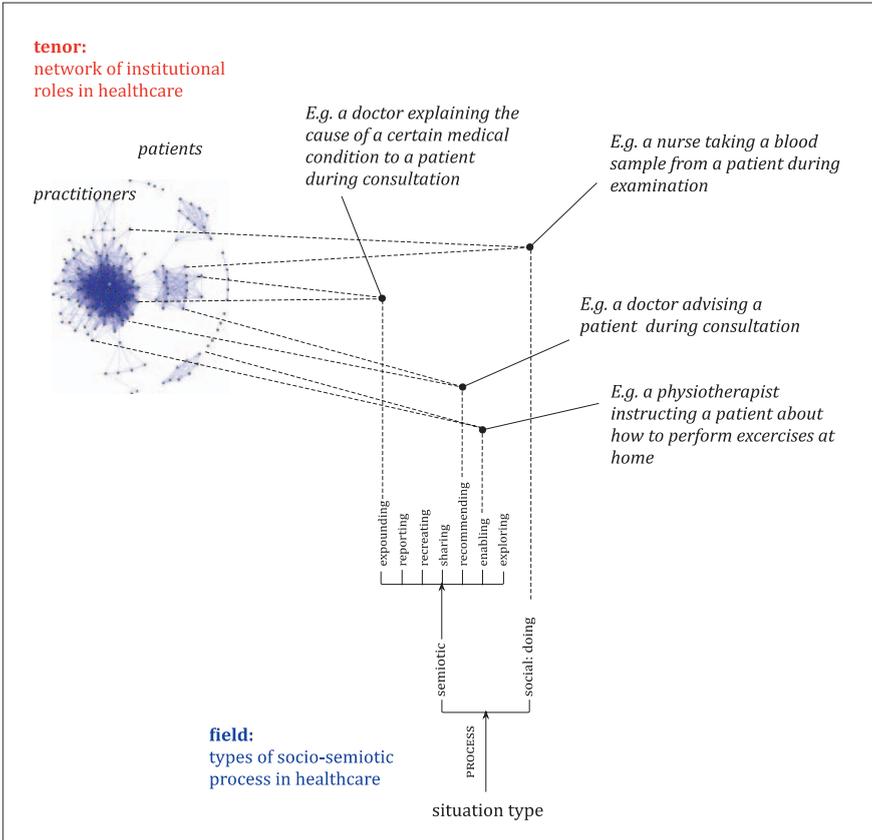


Fig. 4: Schematic representation of the division of labor in a hospital in terms of field (nature of labor) and tenor (who’s involved)

or complex activity” in terms of the *field* parameter of context – the social and semiotic activities unfolding in context, in this case, medical and other healthcare activities, with their purposes and outcomes. Similarly, we can interpret his “group of people” in terms of the *tenor* parameter of context – the social and semiotic roles of the persons taking part in these activities, including the institutional roles of healthcare, and the organization of these into ordered role networks.

The range of healthcare activities within field define the *healthcare labor* undertaken within a hospital, and the distribution of persons in different healthcare roles in these activities define the *division of healthcare labor* within the hospital, as illustrated schematically in Figure 4.

To a particular patient, the division of labor among the healthcare professionals dealing with him or her may of course be bewildering. For example, one of the patients studied in our EDCOM project had 225 distinct “communication encounters” during a period of two hours, each encounter involving a new activity and change of healthcare practitioners and at one point he asked *Who are my specialists?* (Slade et al. 2011: 44). In the case that I started with (the extract in Text [1]), the patient has to recount what happened to her six times in different encounters:

1. To the triage nurse:

(3)

Patient: It just sort of, um, seemed to break in the middle and I cut this middle finger. But it looked quite deep and the, you know, {Nurse: Ah-hm.} and I feel a bit faint.

Nurse 1: Ah, you do? Yeah?

2. To the doctor who first examines her (included in Text [1]):

(4)

Doctor 1: Okay. Um, my name’s [name removed]; I’m one of the doctors here. Wow, what happened?

Patient: I was washing up; I was clearing the sink this morning {Doctor: Yes.} and there was a very fine glass – you know Bodum, they make very fine glass? {Doctor: Ah-ha. Yes, yes.} – and it just seemed to break in my . . . {Doctor: Okay.} . . . in my finger. I was, um – so it seemed to be quite deep, the cut {Doctor: Alright.} and it’s sort of, you know, had it . . .

Doctor 1: When was the last time you had a tetanus shot?

3. To the researcher (on our EDCOM project):

(5)

Researcher: So what did you do?

Patient: Oh, I was just clearing the sink at home and there was a – a glass, very fine glass. And it just seemed to break in my hand; a very . . . it’s very fine glass. Yeah (sighs). And then it’s the blood and then the – you look at it and you think . . . you start to feel giddy. But you know to raise it up and put pressure. It’s not that bad.

Researcher: But still.

Patient: But it’s, it just a – changes the plan today {Radiologist: Mm.}.

Researcher: Are you going to need a stitch?

4. To a registered nurse:

(6)

Nurse 2: And still there's quite a bit of ooze coming out, isn't there? What did you cut it on? A broken – broken . . .

Patient: Um, a very fine glass, very fine.

Nurse 2: Like a champagne glass, was it?

Patient: Ah, no, it was a Bodum, um, very fine; it just seemed to break in my hand.

5. To a doctor who joins later:

(7)

Doctor 2: What did you cut it with?

Patient: Um, very fine glass; very, very fine glass in the kitchen sink this morning.

6. To a staff member of the X-ray department:

(8)

X-ray department staff: So whereabouts did you cut your finger?

Patient: Um, the middle finger.

X-ray department staff: Yes. Is it under – underneath, yeah?

Patient: The . . . just with the finger, and it's very fine glass.

X-ray department staff: Like a wine glass.

Patient: Oh, something like a wine glass but it was more of a tumbler glass. It was very, very fine glass. It just seemed to break in my hand.

X-ray department staff: And does it feel like there's anything in there still?

Patient: I don't think so.

Healthcare is an inherently collaborative activity, so the division of healthcare labor among persons in different institutional roles is central to the quality of healthcare; for example:

- The division of labor between patients and healthcare practitioners has been problematized in terms such as “patient-centered care,” “informed decision making” (see, e.g., Veatch 2009). As illustrated in the analysis in Table 2, consultations in emergency departments tend to be “driven” by clinicians, who keep initiating exchanges, possibly leaving little room for patients to initiate and “tell their story” (cf. Slade et al. 2011: 57–62). However, patients will of course sometimes ask questions (e.g., Text [9] below).
- Healthcare labor involves both field-oriented concerns – arriving at a diagnosis and a plan for treatment – and tenor-oriented ones – establishing

rapport with the patient, expressing empathy; and it would seem that doctors focus more on the former, leaving tenor considerations to nurses (although the picture is complex; there is also a difference between experienced senior doctors and novice junior ones).³ In emergency departments, there is, perhaps not surprisingly (in view of the enormous time pressure), a tendency to foreground field considerations, leaving tenor issues out of the picture (cf. Slade et al. 2011: 53–54).

To explore the nature of healthcare labor further as socio-semiotic activity, I will introduce a typology of such activities – the typology shown in reduced form along the horizontal axis in Figure 4.

4 Field: socio-semiotic processes

Looking at context from the point of view of field, asking “what’s going on?”, we can distinguish eight primary types of social and/or semiotic activity, or process: processes of expounding, reporting, recreating, sharing, doing, recommending, enabling, and exploring (see, e.g., Matthiessen 2006; Teruya 2007; Matthiessen et al. 2010). These eight types are not equally likely to define contexts within a hospital, let alone the emergency department of a hospital; but let me cast the net wide to begin with and include all types of social and semiotic processes that characterize contexts that we can recognize as relevant to issues of health and to healthcare (see Table 3).

In the rightmost column, I have given examples of discourses dealing with health and healthcare. As noted in Section 1, they have been studied under a number of different headings, including “medical discourse” and “health communication.” These terms include discourses unfolding in clinical situation types within institutions of healthcare, but they also include other situation types. Medical discourse and related kinds of discourse have been studied in terms of a number of different frameworks, including ones deriving from a sociological perspective such as conversation analysis (e.g., Heritage and Maynard 2006) and ones deriving from a linguistic perspective such as SFL.

I have bolded those examples that are most central to the workings of a hospital in general and an emergency department in particular. The example in Text (1) is a kind of healthcare discourse that operates in a context of “recommending:

³ For a very brief illustration, see the reactions by different addressees to the patient’s recount of her accident in Texts (3) to (8).

Table 3: Range of contexts relevant to health and healthcare in terms of socio-semiotic process

Context: socio-semiotic process		Discourse used to	Examples
Expounding general knowledge about the world	explaining, categorizing/ documenting	create and disseminate general medical knowledge	<i>medical journal articles, medical text books, clinical lectures, health handbooks</i>
Reporting on particular phenomena	chronicling, inventorying, surveying	record information about particular cases, recount the experiences of particular patients	<i>medical case notes, medical charts, patient records, referral letters, health questionnaires, medical interviews; health news</i>
Recreating aspects of (human) life, typically imaginatively	dramatizing, narrating	dramatize or in other ways create fictional versions of healthcare contexts	<i>medical TV dramas, illness stories</i>
Sharing personal experiences and values	reminiscing, emoting	exchange personal experiences and values relating to health and healthcare	<i>casual conversations about illness and health (care), patient diaries</i>
Doing some social process	directing, coordinating	facilitate medical procedures	<i>examination, treatment (e.g., surgery), therapy, medical check list, medical service encounters</i>
Recommending some course of action	advising	advise patients	<i>medical consultations, medical leaflets</i>
	promoting	promote healthcare services and products	<i>pharmaceutical advertisements</i>
Enabling some course of action	instructing	instruct healthcare practitioners (in training) or patients in medical procedures	<i>medical procedures & medical demonstrations</i>
	regulating	controlling practices relating to healthcare	<i>medical legislation, medical licenses; medical certificates</i>
Exploring public views, values, ideas	reviewing; arguing, debating	assess approaches to healthcare, debate ethical questions relating to illness and health	<i>medical editorials, opinion pieces about healthcare</i>

advising”: the central concern of medical consultations is to arrive at a solution to the medical problem a patient is experiencing, a recommendation for a course of action. However, such contexts may lead to other contexts, like “doing” contexts where a clinician examines or treats the patient or “expounding” contexts where a clinician gives the patient some background medical knowledge (thus very likely recontextualizing expert knowledge in terms accessible to the patient). The latter can be illustrated for our patient’s case (see Text [9]).

(9) Expounding context during medical consultation – doctor giving patient background medical knowledge

Patient: How bad is the nerve damage, that’s mainly what I’m . . .

Doctor 2: Not there, there’s no nerve damage.

Patient: Oh, isn’t there?

Doctor 2: There’s no big nerves there.

Patient: Oh alright. That was mainly what I was thinking, I might have cut this on the . . .

Doctor 2: No, the nerves run along side, and – you know – converging like that, but in the fingertips, tip of the nose, tongue, lips, genitals, toes, there’s millions and . . . so if you cut on, A, it’ll heal probably, and B, there’s ‘til . . . {Patient: Right.} take over.

5 Addition of tenor considerations: institutional roles

The different activities set out in Table 3 involve different *tenor* relationships, more specifically different sets of *institutional roles* such as doctor–patient, nurse–patient, doctor–nurse, patient–family member. The examples in bold involve roles operating within the institution of a hospital. A patient is of course also likely to take on roles relevant to health and healthcare outside the domain of the hospital, e.g., learning about the body and diseases in “expounding” contexts by reading expert medical accounts written for the general public, or getting emotional support from friends in “sharing” contexts by chatting about health problems. And the same is of course true of healthcare professionals – who also need to find ways of dealing with their experiences within hospitals in contexts outside hospitals.

By adding tenor considerations to the distinction within field of the eight primary types of socio-semiotic process (Table 3), we can produce a more detailed map of the *division of labor* in healthcare discussed above (Figure 4), as illustrated in Figure 5. Here the eight primary types of SOCIO-SEMIOTIC PROCESS within field are represented as segments, and different pairs of INSTITUTIONAL ROLES are

represented by successive concentric circles, starting with roles within family and friendship in the innermost circle and moving via two circles involving healthcare practitioner roles to the outermost circle with professional roles within public institutions such as the institution of the media in relation to the general public.

Using a framework such as the one illustrated in Figure 5, we can explore the notion of *patient-centered healthcare*, asking how and to what extent different processes and the role relationships that go with them complement one another in a holistic approach to patient care and patient well-being. It is important to focus not only on situation types involving healthcare professionals within a healthcare institution such as a hospital but also on situation types in the world outside the hospital that are important to a patient's well-being. Here sharing contexts are enormously important because they are concerned with the "life-world" of patients – and also, of course, with those of healthcare practitioners – as opposed to the voice of medicine (cf. Mishler 1984: 104).

6 Patient journeys through hospitals

For patients, the contexts set out in Figure 5 are of course ordered in time; and within institutions of healthcare such as hospitals, the sequences of situations that patients are involved in are carefully controlled and managed. One way of studying such sequences is to follow patients as they move, or are moved, through hospitals (as was done in the EDCOM Project, see Slade et al. 2008). Such *patient journeys* have been described by a number of researchers (e.g., Redfern et al. 2009; Laxmisan et al. 2007).

Patient journeys can be analyzed and described as *sequences of situation types*: just as institutions can be interpreted as "the real isolates of culture," situation types can analogously be interpreted as "the real isolates of institutions." As already noted and shown in Figure 3, the "compositional" relationship is one of *instantiation*: institutions instantiate a culture, situation types instantiate an institution, and (by a further step) situations instantiate a situation type (cf. Halliday 2002; Hasan 2009; Matthiessen 2007). In the course of a patient journey, patients thus encounter one situation after another, with changes both in socio-semiotic processes and in personnel.

Building on an earlier description of the patient journey through the emergency department of an Australian hospital (Slade et al. 2008: 283) and further exploration of the details of patient journeys, let me present a highly schematic representation of a patient journey through the Accidents & Emergency department of the public hospital in Hong Kong where we are currently conducting research (see Figure 6).

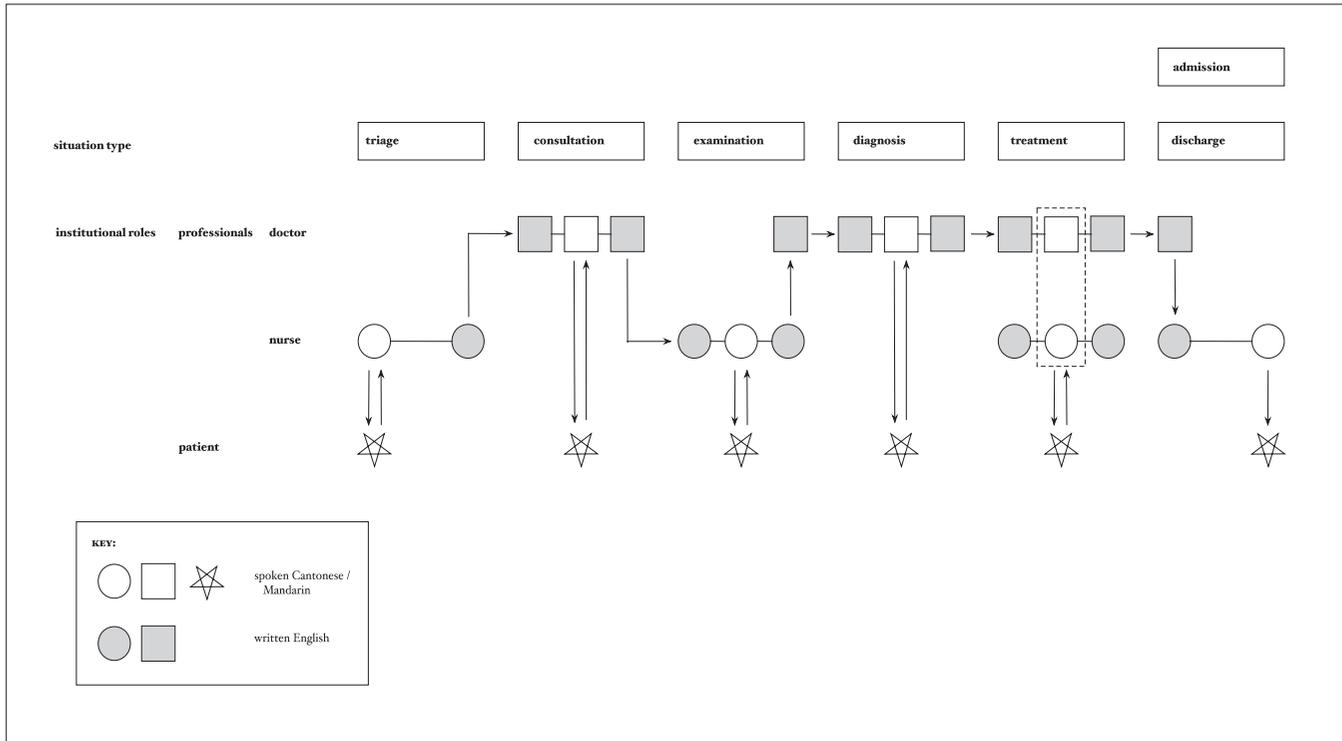


Fig. 6: Schematic representation of a patient journey shown in terms of the sequence of situation types, institutional roles involved (tenor), and switches between spoken dialogue in Cantonese (or Mandarin) and written monologic notes or records in English (mode)

This diagram is based on diagrammatic accounts by two of our research team members, Andy Fung and Jack Pun. It shows the sequence of situation types that a patient moves through, together with the institutional roles involved in each situation type. Throughout the journey, the patient remains the same, of course (hopefully!); but the healthcare professionals taking on the different institutional roles keep changing – nurses of different kinds, starting with triage nurses, both junior and senior doctors, specialists such as radiologists, and so on. This highlights the fact that the persons in the healthcare professional roles constitute a team, and have to work as a team (cf. Moorman 2007) – with ways of ensuring coordination and collective memory. The diagram also makes a distinction in mode (the third contextual parameter, alongside field and tenor: see Halliday 1978) between spoken dialogues in Cantonese (or Mandarin) and written monologic notes and records in English that are passed from one healthcare professional to another.

The patient journey sketched in Figure 6 is highly complex for all persons involved, and more of the complexity would be revealed if we examined each situation type along the way in detail. One reflection of complexity from the patient's point of view is the range of healthcare professionals in different roles that s/he will meet throughout the journey, and s/he is likely to experience this in the form of repeated questions from different professionals about the same topics, as illustrated above in Texts (3) through (8).

For patients, the journey may be a scary tour through the hospital – a journey into fear, full of anxiety and stress;⁴ and there is an extensive literature on how to improve the situation for patients – and also for their family and friends, both before and during the journey. During the course of the journey, doctors and nurses can help patients by giving them previews of the next stages they will encounter (“signpost the hospital process” in Slade et al. 2011: 69), as in Text (10) (which follows immediately after Text [9] above).

(10) Doctor previewing course of action for patient

Doctor 2: So we'll just get an X-ray and make sure there's no glass in it; and depending on the silicon content of the glass that was used, anyway, so it'll narrow it down; and then, ah, we'll um probably just put a great big bandage on it. Those ones are a bit too small, too thick, and they do stop bleeding mostly by themselves. What we do is put a really

⁴ Patients will inevitably have a very fragmented view of their own journeys; for example, they are not aware of what information is being exchanged (or lost!) in handovers – the shaded squares and circles in Figure 6.

tight bandage on it and get you to sit with it elevated for as long as you possibly can, sort of thing, and that works just as well as stitching.

Patient: Yes, alright.

In addition, before patients embark on their journeys, hospitals may provide them with roadmaps – information about the stages they may encounter as they move through the hospital.

7 Risk and failure in healthcare

One key reason for studying patient journeys is of course to identify *risks* – potential failures, so-called *latent failures*, in the system – so that they can be avoided before they become active failures or at least minimized through more fault-tolerant systems and patient safety can be ensured. Working toward greater patient safety by reducing errors has become a central theme in healthcare (see, e.g., Spath 2011). Risk is inherent in any designed system – power plants, air traffic control systems, healthcare systems, and so on. Here one important insight has been the recognition that systems are at fault if they rely on the mistaken assumption that professionals will not make mistakes (see also Moorman 2007).

There are many kinds of risk inherent in healthcare, so many kinds of potential errors that need to be reduced. To ensure safer patient care, McClanahan et al.

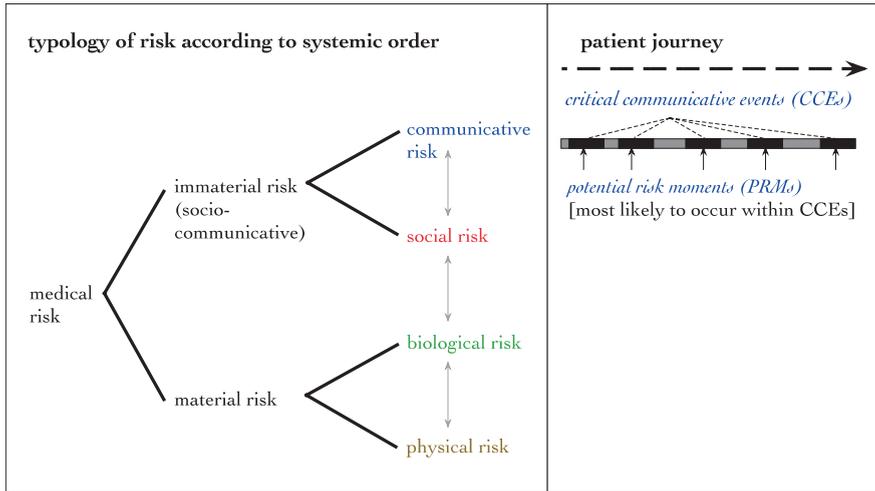


Fig. 7: Typology of risks according to systemic order in the course of patient journeys (through emergency departments)

(2011) suggest five key “error reduction strategies”: “improve information access,” “reduce reliance on memory,” “reduce number of hand-offs” (= handovers, CM), “standardize tasks,” and “error-proof processes.” It is striking how central *semiotic errors* are on their list – i.e., errors related to information flow and communication in healthcare systems.

Let me try to locate what I have called *semiotic risk* in an ordered typology of kinds of risk in healthcare, with particular reference to patient journeys through emergency departments (see Figure 7). Here I am using the ordered typology of systems operating in different kinds of phenomenal realm proposed by Halliday (e.g., 1996) and developed further by us in various contexts (e.g., Halliday and Matthiessen 2006; Halliday 2005; Matthiessen 2007): material systems – physical systems and biological systems – and immaterial systems – social systems and semiotic systems.

Risks may be *material* in nature (i.e., relating to the world of matter):

- In institutions of healthcare such as hospitals, risks may be *physical* – the risk of failure due to faulty equipment, power failure, or destruction of part of a hospital as a “habitat” because of fire, earthquake, war, and other natural or man-made disasters.
- They may also be *biological* since a hospital is a complex ecosystem where there is always a danger of the spread of diseases such as Legionnaire’s disease.

While they are serious, these material risks are well-known and there is a long tradition of dealing with them. Harder to detect than these material risks are *immaterial* ones:

- Risks may be *social* in nature, having to do with the administration and management of hospitals – work schedules, bed assignments, team coordination, and all the other complex organizational challenges of a modern hospital.
- By another step in our ordered typology of systems, we can recognize *semiotic* risks. These are risks relating to the flow of information through a hospital as a semiotic construct, as an information system. Such risks include the loss or distortion of information in exchanges between patients and healthcare professionals but also between healthcare professionals, one key area being the handovers between different (teams of) healthcare professionals in the course of a patient journey (the shaded squares and circles in Figure 6).

There are thus four orders of risk in healthcare – physical, biological, social, and semiotic; and any of these may of course be actualized as *failures*. Like risks, failures can be grouped into immaterial and material failures (cf. again Hal-

liday's [2005] two realms of human experience – meaning [immaterial] and matter).

As linguists – and as semioticians – we are of course trained to detect and to deal with semiotic risk in particular. In our work on the EDCOM Project in Australia, we identified “critical communicative events” during patient journeys, and within these we tried to locate potential risk moments. During a patient's journey through an emergency department, critical communicative events include clinical handover (or “hand-off” in American English). These are clearly occasions when information may be lost or distorted. McClanahan et al. (2011) recommend reducing the number of handovers; another recommendation is to ensure that they are centered on a patient's bedside as far as possible, bringing the relevant people together – including the patient. There are also technological solutions in the form of electronic patient records. These approaches are all complementary ways of addressing the semiotic risks inherent in handovers. At the same time, we need to undertake considerably more research to inform the development of possible solutions. Di Slade is currently directing a large-scale project in Australia concerned specifically with handover, and the findings of this research will help us gain considerably more insight into semiotic risk.

8 Patients in three orders of system

In the previous section, I introduced the ordered typology of systems in the context of sorting out different kinds of risk and failure in healthcare (Figure 7). This typology can be applied to other aspects of healthcare as well, including crucially to our conception of patients. Patients are simultaneously *organisms* within the biological order of systems, *persons* within the social order of systems, and *meaners* within the semiotic order of systems (cf. Lemke 1995: Ch. 5; Halliday and Matthiessen 2006) (see Figure 8).

The move toward patient-centered healthcare, which has intensified since the 1990s, is an ascent along the ordered typology of systems shown in Figure 8 from a focus on patients as organisms – as a body toward which the *clinical gaze* is directed – to a complementary focus on patients as persons playing many social roles in different social networks and also as meaners playing many semiotic roles in different communication networks. This shift in focus is related to other changes concerned with the status of patients, in particular the move to informed shared decision making and to holistic care. As Hydén puts it in an overview of illness narratives:

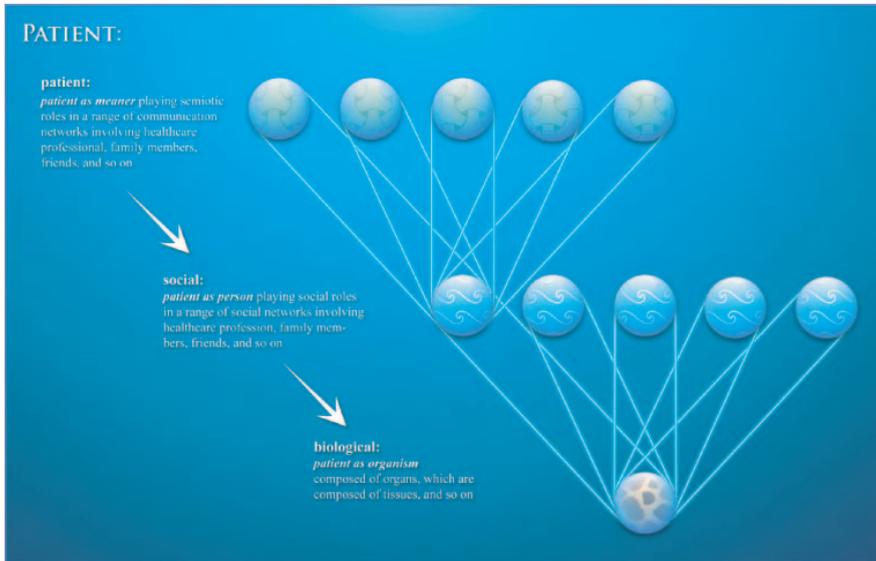


Fig. 8: Patient as organism (biological order), person (social order), and meander (semiotic order)

The speech of patients has traditionally been accorded a somewhat ambiguous status in modern biomedicine. Doctors from the turn of the century onwards have been inclined to treat the reports of their patients with considerable scepticism. The clinical gaze of the medical profession was focused on the inner bodily world of the patients. How patients spoke about their ills, symptoms and problems was regarded at best as a pale reflection of the language of the organs and tissues and their pathological changes. (Hydén 1997: 48)

Today, if a patient is viewed only as a biological organism, this would be seen as a clear case of *reductionism*. At the same time, it is clear that locating medicine or healthcare within a traditional faculty structure of a university is a real challenge since there are connections to biomedical sciences, social sciences and semiotic sciences (humanities).

The recognition that patients are not only organisms but also persons and meaners takes us back to the combination of field and tenor shown in Figure 5. When patients are viewed as meaners and seen in the different meaning groups they take part in, we can explore patient-centered holistic care in semiotic terms. And it becomes possible to connect the different orders – patient as organism, as person, and as meander. Empathy and rapport are created semiotically in exchanges of meaning with patients in different meaning groups, both with

healthcare professionals and with other people who are important to the well-being of patients; but they are also related to biological states and processes.

9 Healthcare systems and hospitals

In the previous section, I discussed how patients can be viewed from different vantage points. The same *multi-systemic framework* can be applied to a healthcare system as a whole, as already indicated in Figure 7.

In terms of our multi-systemic framework, healthcare systems and their elements such as hospitals are complex partly because they are simultaneously semiotic, social, biological, and physical systems and partly because a relatively high proportion of the complexity is “immaterial” – social and semiotic – in nature, and immaterial complexity is arguably harder to automate, monitor, and control than material complexity.⁵ There is thus in a sense a built-in tension in healthcare systems between immaterial concerns and material ones – between meaning and matter, in Halliday’s (2005) formulation. As noted above, this shows up also in academic contexts; for example, should schools of medicine be located within human sciences or within biological ones (“biomedicine”)?

To reflect the semiotic complexity of such systems, we might call them *semo-technical systems*, relating the highest order of organization to the technical nature of their material manifestations. This can also serve as a reminder that semiotic technology is important to advances in healthcare, just as material technology is; we now have information processing technology in healthcare: “health informatics” or “medical informatics” and “healthcare knowledge management” (e.g., Bali and Dwivedi 2007).

Given the complexity of a semo-technical system such as a hospital, what contributions can we make as linguists – or more generally, as semioticians (taking into account all the semiotic systems that operate within a hospital)? While many issues relating to semiotic risk have already been identified and are being addressed, e.g., through the kind of semo-technology just referred to, I think we still need a much deeper and broader understanding of hospitals in semiotic terms – and not just of hospitals, but also of the other institutions relevant to health and well-being, so that we can ensure both safety and quality care in terms of other aspects of the experience of patients and healthcare professionals.

⁵ It is also much harder to design and change. Such systems cannot be designed and changed top-down (“from above”); they must be developed “trinocularly,” and it is important to find a balance between evolution and design.

We can achieve such a goal through what I would call *discursive cartography* – mapping hospitals (and other institutions of healthcare) semiotically by sampling and classifying all the relevant texts in contexts that they depend on as cultural institutions, as illustrated by Figure 5 (cf. my use of “cartography” in Matthiessen 1995). Through cartography, we can begin to analyze and describe hospitals as systems of meaning, noting all the myriad of exchanges of meaning that produce the flows of meaning through the hospital and documenting how these meanings are stored, accessed, and managed. This would of course involve the sampling and analysis of healthcare communication and medical discourses, but also of all the other discourses relevant to the workings of a hospital – including administrative discourses, technical discourses, policy discourses, media discourses, legal discourses, and “lifeworld” discourses.

10 Conclusion

SFL has been used in studies of a wide range of institutions, including the institutions of the family and of friendship and mateship (e.g., Eggins and Slade 2005), of education (e.g., Christie and Martin 1997; Christie 2012), of commerce (e.g., Forey and Lockwood 2010), of law (e.g., Martin et al. this issue), and of healthcare, and in the application of the results of such studies to address problems in institutions. Here I have focused on healthcare, but it would certainly be productive to compare issues and results across these different cultural domains of application. For instance, there are certain parallels in the move toward learner-centered education and patient-centered healthcare; and perhaps it makes sense to aim for the development of autonomous patients on the model of autonomous learners.

In healthcare, there has been a shift from doctor-centered approaches to patient-centered ones, a development that has come up at various points in the discussion above. By combining the ordered typology of systems in terms of the view of patients and considerations of tenor, we can characterize this shift as in Figure 9. Since tenor is about role relationships, not about roles in isolation, a consideration of the nature of tenor would suggest that healthcare might be centered on the relationship between patients and carers; and this is indeed a development that has been encouraged in the last decade and a half or so (see, e.g., Tresolini et al. 1994). The notion of *relationship-centered healthcare* embodies principles such as team work, and shared informed decision making, where everybody concerned is involved with the field of care and healing; and it also makes sense from the point of view of patients as meaners taking on roles in many meaning groups and being helped by friends and family members.

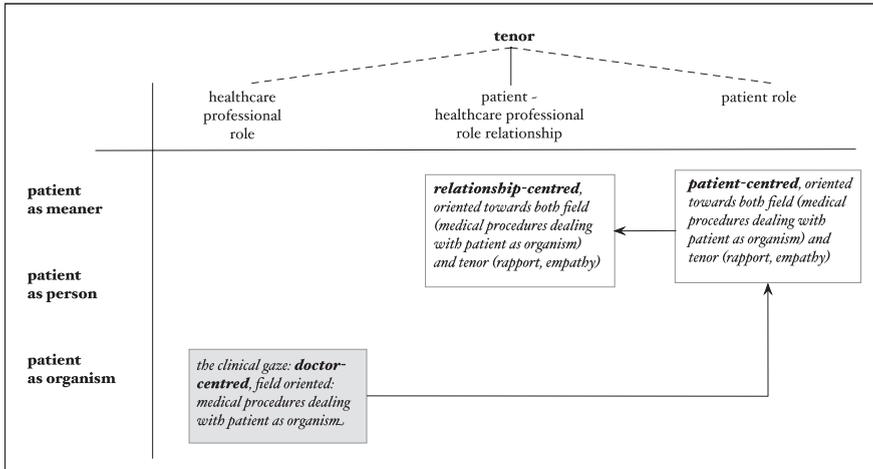


Fig. 9: The shift from doctor-centered healthcare via patient-centered healthcare toward relationship-centered healthcare

I have tried to point to some ways in which SFL can inform our investigations of contexts of healthcare, and our interventions based on the outcomes of such investigations. At the same time, I have also tried to illustrate how this line of work can provide us with opportunities for developing SFL – particularly in the area that can be called institutional linguistics.

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Bionote

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