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# 25

# Language and Medicine

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## 25.1 Introduction

From early in its development Systemic Functional Linguistics (SFL) has drawn on and contributed to the study of medical discourse (e.g. Halliday et al. 2007) and it was in the context of language and medicine in the 1970s that J. R. Martin first developed his work on discourse semantics (Martin 2014). Since then there has been a steady stream of theses and articles using SFL concepts and techniques to study the language of medicine. Yet, to the best of my knowledge, this work has never been brought together into a monograph, special issue, or edited collection, and research in this area has not yet gained the profile of a recognized specialism within SFL in the way that fields of application such as education or child language development have done. An important consideration here is that research on medical discourse has lacked the coordination of other major applications of SFL, which has affected the amount of work done, the degree to which initial projects are followed up, and the impact of such work and its visibility.

This chapter offers a profile of work on language and medicine informed by SFL theory. It proceeds by outlining the health problems and settings on which SFL-based studies have focused, reviewing the theoretical and descriptive tools used, and considering how the role of language in healthcare (and in health more broadly) has been conceptualized. A research example is given, and the chapter critically reflects on what has been achieved so far and the potential for this field to develop into a more strategically coordinated application of Systemic Functional Linguistics that makes a substantial contribution to improving health and healthcare.

## 25.2 Sites of Engagement and Points of Intervention

There are well over 100 publications and theses on language and medicine that use SFL principles, covering many healthcare contexts and analytical foci. A good way of grouping such publications is around their stated or implied 'intervention points' – the physical or conceptual places within a biological or institutional system where pressure can be applied to disrupt existing function and promote change (Reinsborough and Canning 2010).

The present review starts outside the health system, with the everyday construal of pain, then moves to the 'core' of the healthcare system, namely, spoken interaction between clinicians and patients. We then move to contexts that support and/or shape this core, such as interpreting, and interactions within clinical teams. Finally, we consider broader institutional and cultural contexts in which healthcare is situated, suggesting there is untapped potential for SFL here.

This notion of intervention is important for evaluating the impact of SFL medical linguistics and considering where future efforts are best directed because healthcare is a relatively weak determinant of health (see Figure 25.1), perhaps as low as 15 per cent (McGinnis et al. 2002). Note that some projects discussed involve multiple sites of engagement/intervention.

### 25.2.1 Everyday Construal of Experience

In foundational work on SFL, Halliday foreshadows medicine as an important domain for institutional linguistics and register (see Halliday et al.

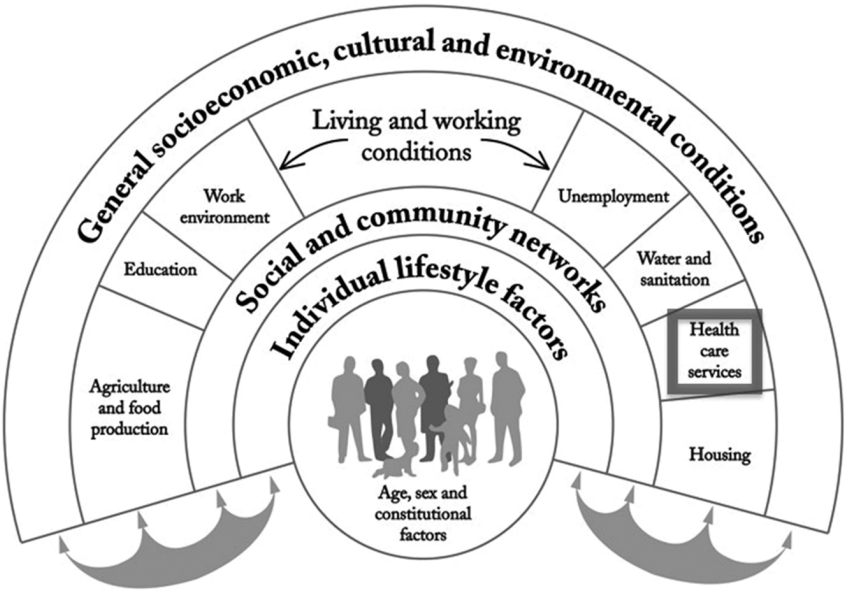


**Figure 25.1:** The main determinants of health (after Dahlgren and Whitehead 2007)

2007), but it is not until 1998 that he contributes an extended discussion of medical language. Using evidence from the first COBUILD corpus, a short text, and arrays of typical spoken expressions, Halliday shows how pain is multiply categorized – as a quality (*sore tummy*), a thing (*tummyache*), and various kinds of process (*my tummy aches*, *is giving me trouble*) (Halliday 2005:306).

Halliday's argument proceeds by comparing possible ways of representing pain in English with typical representations according to the corpus (albeit of written texts), considering why *I have a headache* is more frequent than *My head aches/is aching/hurts*. Interestingly, similar patterns are reported across disparate languages including French, Russian, and Chinese: presenting the self (I/me) as clause Theme construes the whole person as the 'setting out point' for the experience of headache. Several follow-up cross-linguistic studies on pain include Greek (Lascaratou 2007), Japanese (Hori 2006), German (Overlach 2008), and Italian (Bacchini 2012). More generally, this kind of analysis, where varying 'ways of saying' are interrogated lexicogrammatically, has been taken up by numerous scholars studying clinical consultations.

On the question of an interventionist medical linguistics, Halliday (2005:307) seems ambivalent: 'Whether by analysing the grammar we could in any way contribute to the practical alleviation and management of pain I do not know.' However, he also stresses that the 'boundary between the semiotic and the material worlds is by no means totally impermeable' (Halliday 2005:307), raising the idea that interlocutors might helpfully reconstrue pain, as a form of 'logotherapy' (Halliday 2005:311). This idea is central to the burgeoning narrative therapy/narrative medicine movement (Charon 2007), including the way that patients' construals are taken up in clinical reasoning.

### 25.2.2 The Clinician–Patient Interface

Interaction between patients and clinicians is the area of language and medicine most studied within SFL, with at least sixty publications since the 1980s.

In this context – simplifying greatly – patients and clinicians must communicate effectively in order to appropriately plan and implement medical treatment and preventive measures. Most patient dissatisfaction with clinicians concerns their communication and interpersonal skills, not their medical knowledge and abilities (Slade et al. 2008). Poor communication between patients and clinicians leads to medical error and, far too often, considerable patient distress (Vincent and Coulter 2002). Effective communication and patient involvement in decision-making can improve treatment decisions, treatment adherence, and patient health outcomes (e.g. Kaplan et al. 1989), although it can also lead patients to 'rational non-compliance' (Donovan and Blake 1992) or refusing recommended

treatment (Moore et al. 2001; Moore 2004). Some health outcomes may stem directly from the therapeutic value of the communication itself in physical conditions (Street et al. 2009) as well as in the context of psychotherapy.

Probably the first use of SFL for extended analyses of clinician–patient interaction was Mishler's *Discourse of Medicine* (1984). Critiquing the then mainstream quantitative methods of studying clinical interaction, Mishler argues that they ignore the problems of transforming speech to written transcripts as 'data', which tends to strip away meaning in a quest for objectivity. Mishler, a social psychologist, uses all three metafunctions of SFL but focuses in particular on cohesion, adapting Halliday and Hasan's (1976) approach to suit dialogue. He identifies clusters of structural, semantic, and grammatical patterns that tend to be treated as routine and unproblematic in medical interaction, which he identifies as 'the voice of medicine'. These contrast with and are typically used to interrupt ways of speaking known as 'the voice of the lifeworld', which is dominated by features such as temporal rather than causal organization. Mishler's work, which largely aimed to get clinicians to encourage not silence 'the voice of the lifeworld', has had a strong influence on how clinical interaction is studied and taught, in no small part due to Mishler's position and influence at Harvard Medical School.

Close on Mishler's heels was Cassell's *Talking with Patients* (1985). Cassell stresses that clinicians need a solid grounding in the systems of language underlying clinical communication before 'communication skills' are taught, just as one would 'never dream of teaching physical diagnosis to students lacking a background in anatomy and pathology' (Cassell 1985:5). Having recorded hundreds of hours of consultations, Cassell exhorts clinicians to study their own dialogue with patients and learn to spot subtle features, such as how 'people shift to impersonal pronouns when they describe their illnesses or unpleasant events' (Cassell 1985:8) and how patients attach meaning to symptoms and illnesses.

To my knowledge, the first description of generic structure for medical consultations was given by Halliday (2005), comprising 'opening', 'investigation', 'examination', 'diagnosis', and 'suggested treatment', which includes 'negotiation' and 'reassurance' (a structure for his single example text, not a Generic Structure Potential). Interestingly, the 'treatment phase' is seen as a typical manifestation of the complex power relationship between professionals and clients, with its grammatical shifts in mood and modality. Such an account can be linked with Halliday's discussions elsewhere of the relation between domains of activity and registerial boundaries, or points on the cline of instantiation, since it emphasizes similarities in the registerial settings of medical and other professional discourse (see Moore 2017).

Following in this vein, much of the SFL literature on medicine and language describes generic structure and/or explores patients' construals

of their experience and values, and how these are taken up or not by clinicians in consultation settings. This body of work includes descriptive studies of specific sites (e.g. general practice, emergency medicine) and conditions (e.g. HIV disease) and has generated interventions such as practical handbooks and other professional development material for clinicians.

#### 25.2.2.1 General Practice

Most SFL studies of general practice focus on the tenor of consultations. For instance, using four consultations, Thompson (1999:101) examines how GPs 'act the part' linguistically, balancing 'superiority and humanity' such as through the prominent use of 'declarative questions' wherein the doctor both gives information and seeks confirmation.

In Thompson's study doctors used marked ellipsis more frequently than patients. Thompson interprets this as a textual resource realizing not just mode but also tenor, since it construes informality and familiarity by evoking co-operation, but also hierarchy by virtue of speaker difference.

A rare example of multimodal analysis of clinical interaction is offered by Thwaite (2015), drawing on a registerially varied video corpus designed for TESOL contexts. Profiling one GP consultation, Thwaite shows, for example, that the doctor speaks for 49 per cent of video time, whereas the patient speaks for 21 per cent (the remainder is silence). While speaking, the doctor looked directly at the patient (direct gaze) for 37 per cent of the video time, whereas patient direct gaze lasted 16 per cent of the video time. Patterns are compared with other registers studied (e.g. lawyer–client interview).

An intonation analysis is also presented showing that the doctor uses all five primary tones, whereas the patient uses no Tone 5. Since Tone 5 conveys meanings such as 'You may not realize this but it turns out to be the case', these differences arguably reflect participant roles in the context.[1] Thwaite's preliminary results indicate the potential of multimodal video analysis for clinically relevant SFL research.

Three recent SFL-oriented studies try to address how empathy is realized linguistically, and how empathic communication can be taught or supported. Pounds (2011) offers a model of the language resources available for empathic expression, drawing on appraisal systems in English (Martin and White 2005). His aim is to provide doctors with a flexible resource for controlling their construal of empathy, rather than just a few key phrases they can insert into consultations. His thesis does not however apply the model to a corpus of texts.

Appraisal is also used in Watson's empirical analysis of empathy (2012), but this study also examines phonological features (particularly intonation) that construe affiliation and bonding (Martin 2004). A key finding is that

[1] For additional analysis of this data, see Halliday and Greaves (2008:80–94).

GPs and patients bond over the patient's values rather than the doctor's, although other studies suggest that this might depend on the presenting condition and length of clinical relationship (Moore 2004).

Patient-initiated humour is a further resource for building empathy (Eggins 2014). Whereas clinical discourse can stigmatize patients or treat them as 'non-persons' (Goffman 1963), patient-initiated humour encourages clinicians to depart from the 'professional' script and use more inclusive, egalitarian modes of everyday interaction. Eggins' subjects were hospital inpatients, but her findings probably extend to primary care settings. Patient-initiated humour seems to differ in function from humour between clinicians, which can promote solidarity or enforce existing hierarchies (see Eggins and Slade 2015).

#### 25.2.2.2 HIV Medicine

SFL-based studies of HIV discourse have contributed to a social research response to HIV/AIDS in Australia. While still concerned with tenor, these studies have also examined agentivity and technicality, and illuminated relations between contextual patterning and linguistic patterning.

Moore et al. (2001) draw on transitivity, cohesion, and implicature patterns to show how the technical term *viral load* is multiply coded – as a biological property of the HIV-positive body, and as an indicator of treatment effectiveness, patient compliance, and overall wellness. In practice, it is the discursive alignment of patient and doctor regarding what such codings index (biological, clinical, lifeworld) that determines how technicality moves treatment forward (or not). Consultations between HIV doctors and patients can look superficially like conversations between clinicians, but patient expertise in clinical reasoning can be overestimated. One recommendation is that the ability to recognize and flag discursive shifts be considered a central component of doctors' professional expertise.

In related research, Moore (2004, 2005, forthcoming) gives a multi-stratal account of joint decision-making in HIV medicine, and critiques tools for the semantic-level modelling of agency such as Hasan's (1985) cline of dynamism, van Leeuwen's (1995) socio-semantic networks, and the use of transitivity/ergativity as exhausting the textual analysis of agentivity. Results show how important it is to model semiotic agency (action affecting others through processes of sensing and saying), and that joint decision-making is more likely to occur where doctors and patients construe each other as semiotic agents, building on reciprocal expertise. Additional foci include the therapeutic construal of identity, the linguistics of 'compliance' and its lack of fit with patient-centred medicine, and the analysis of complex contexts (Candlin et al. 1998; McInnes et al. 2001).

#### 25.2.2.3 Oncology

Several studies have used SFL to explore clinical interaction in oncology settings, including breast cancer (Lobb et al. 2006; Moore and Butt 2004;

see example in Section 25.3), colorectal cancer (Jordens 2002), ovarian cancer (Jordens et al. 2010), melanoma (Williams 2014), and oncological palliative care (Karimi et al. 2018). Although interpersonal features are included in these studies, they also often focus on ideational aspects such as technicality (e.g. *genes, mutation, equipoise*) and construing agency.

Some of this research examines how oncologists present clinical trials as treatment options (Brown et al. 2004) with results used in professional development (e.g. Brown et al. 2007), influencing discursive approaches beyond SFL (Brown 2014).

An important contribution (based on interviews not consultations) is Jordens' analysis of cancer illness narratives (Jordens et al. 2001; Jordens 2002), which interrogates complexity in healthcare discourse and its social significance, using Martin and Plum's (1997) narrative types. Against the dominant view (Frank 1995), Jordens argues that patients with the greatest life disruption have the most complex and, in some ways, the most tightly organized – rather than chaotic – narratives (see Henderson-Brooks (2006a, 2006b) and Butt et al. (2010) on complexity in psychotherapeutic discourse).

Jordens et al.'s (2010) research has informed Cancer Australia's policy on post-treatment surveillance in ovarian cancer. They use Foucault's notion of the medical gaze and methods from Moore et al. (2001) to critique CA125 testing (a serum marker used to check for recurrence). Like viral load in HIV, the various meanings of CA125 play out in ways that can undermine shared decision-making, and increase women's anxiety, without clear evidence that testing improves survival.

Turning to melanoma, social stratification is the focus of current multidisciplinary research (Williams 2014). Departing from 'health literacy' explanations, Williams uses semantic variation (Hasan 2009a) to explore why patient socioeconomic status (SES) influences treatment success for melanoma, where incidence is greater in high-SES groups, but mortality is greater in low-SES groups.

#### 25.2.2.4 Emergency Medicine

Reporting on two collaborative projects on emergency medicine, Matthiessen (2013) gauges the potential for healthcare to become a major site of application for Halliday's 'appliable linguistics'. Drawing on Hydén (1997) on the clinical gaze, and Halliday's (2002) orders of system complexity, Matthiessen argues that it is no longer enough for patients to be seen as persons: they must also be seen as 'meaners', located in networks of meaners and negotiated meanings. Such a framing helps bring out the interactive complexity of emergency medicine, especially in multilingual settings, and seems crucial to evaluating how 'patient-centred' care works in practice (see Karimi et al. 2018).

Whereas Matthiessen (2013) emphasizes work conducted in Hong Kong, related research investigates emergency communication in Australia. Slade et al. (2015b) is a collection of papers demonstrating that effective

communication is the best way of controlling 'potential risk points'. One key finding from these collaborations is that choices in thematic signposting (an aspect of the textual metafunction) can increase patient involvement, thus increasing opportunities for assuring clinician–patient alignment; by contrast, poor thematic signposting can increase the risk of both communicative errors and medical errors (Herke et al. 2008).

#### 25.2.2.5 End-of-Life Care

SFL work on palliative care has informed Australian national guidelines on communicating about end-of-life issues (Clayton et al. 2007). Whereas health communication literature typically advises using 'open questions', in Moore (2015) doctors appeared to best facilitate discussion – without forcing unwanted discussion – by using iterative sequences featuring certain choices from Hasan's (2009a) Demand Information semantic network, namely *ask, verify, apprize,* and *probe* questions, with the additional features *prefacing* and *assumptive* strategically used at certain points. Another key resource for eliciting discussion was graduated evaluation, particularly in nominal groups, e.g. *issues* > *concerns* > *worries* > *fears* (Tuckwell and Moore in preparation).

Driscoll (2012) uses transitivity analysis and Hasan's (1985) cline of dynamism to explore the 'voice of medicine' and the 'voice of everyday life' (after Mishler 1984) in patient interviews and advice websites about terminal illness. Advice texts constructed patients as wanting information on their illness, care and support, and certain living activities, whereas in the interview data, what patients said they wanted included people, certain qualities in their care (e.g. kindness), and – importantly – to avoid treatment or certain treatments. Patients did not refer to wanting to discuss their illness.

Karimi et al. (2018) use Hasan's contextual system networks (e.g. Hasan 2009b) to show how the medical oncologist's role in advanced cancer care is multifaceted and complex, calibrating shifting roles against specific textual properties. For example, as consultations move closer towards the end of a patient's life, the turn length and 'semantic work' of the patient appears to increase and that of the oncologist decreases: these changes are explained as contextual reconfigurations, including changes from specialized to quotidian field, as the agentive role moves to therapist–client.

#### 25.2.2.6 Nursing

Several studies discussed here use SFL tools to analyze nurse–patient interaction (e.g. Chandler et al. 2015; Eggins et al. 2016; Kealley et al. 2004; Kealley 2007; Slade et al. 2015a; Wyer et al. 2017). Additionally, Candlin (2000, 2002) uses Hasan's cline of dynamism and coins the term 'comprehensive coherence' to describe how superficially 'casual' conversations with patients constitute professional nursing expertise. Lassen and Strunck (2011) show how nurses invoke a 'positive' discourse (Martin and

Rose 2003), disrupting national stereotypes that exclude ethnic minority patients and frame them as an expensive burden on the Danish health system.

#### 25.2.2.7 Sexual and Reproductive Health

Video observation and interviews conducted in Family Planning (FP) clinics (Slade et al. 2009; de Silva Joyce et al. 2015) suggest that this context features a particularly high level of effective communication, including strong congruence between messages given and received by both doctors and clients,[2] and high levels of satisfaction, although FP consultations are admittedly much longer than average GP consultations.

One particularly interesting finding is that women's reasons for attending Family Planning involve both *reduced* and *increased* social distance – talking to female specialists about 'female issues' configures perhaps surprisingly with the 'anonymity' clients feel they cannot get with family GPs. In addition, family planning exemplifies delicate register variation: here socio-semantic processes of 'sharing' are frequent (Slade et al. 2009), possibly unlike medicine more generally (Matthiessen 2013).

#### 25.2.2.8 Mental Health

There is a long tradition of SFL research into mental health discourse. Often scholars are concerned not only with examining language as 'a symptom and a resource' (Matthiessen 2013) for treating a specific illness/disorder, but also with the extent to which mental health problems are etiologically related to specific ways of interacting and meaning-making. Much of the SFL work conducted on mental health has been integrated into clinical practice and theory. The language used by schizophrenia patients is one of the earliest SFL studies of any medical context (Rochester et al. 1977; Rochester and Martin 1979; also see Asp and De Villiers, this volume).

Building on this work is an ongoing collaboration between SFL scholars and authors and practitioners of the Conversational Model of psychotherapy. Particular focus has been on Borderline Personality Disorder (BPD), where patients 'struggle in establishing a border between themselves and significant others, which is itself fundamental to a deeper construal of their own existence' (Henderson-Brooks 2006a:1). Outputs of this collaboration include several honours and PhD theses by linguists (e.g. Henderson-Brooks 2006a, 2006b; Khoo 2013) and by psychiatrists/psychotherapists (Korner 2015), plus research articles (e.g. Butt et al. 2010) and, importantly, contributions to a clinical practice manual on Borderline Personality Disorder (BPD), as well as to curricula for postgraduate degrees in psychotherapy (e.g. Butt et al. 2012).

[2] Women attending FP clinics are called 'clients', which is arguably consistent with values of patient/client autonomy and feminism that inform sexual and reproductive healthcare.

Cohesion and cohesive harmony (Hasan 1984) have been key to this work, with Butt et al. (2010) exploring the semantic fragmentation and fusion that characterizes dissociative episodes among patients with BPD, and tracking their possible resolution in therapeutic interaction. Butt's linguistic concepts of motivated selection, semantic drift, and instantial weight have been deployed, and analogies between psychotherapy, verbal art, and science are drawn (Butt et al. 2013). The linguistic notion of cohesion has become a central metaphor in the Conversational Model's theory of BPD and how it arises (Meares et al. 2013).

Khoo (2013) takes a closer look at cohesion in her study of psychotherapeutic discourse, including the relative merits of quantitative and qualitative analyses, and the iconicity of cohesive harmony. She gives examples of texts with poor numerical measures of cohesion that are judged more therapeutically valuable than others with high scores (Khoo 2016).

Using a multi-stratal approach and fine-grained analyses of agency and appraisal, Henderson-Brooks (2006a, 2006b) examines claims about three conversation types observed in consultations with patients with BPD. These linguistically distinguishable text types represent shifts between an alienated or truncated self, construed through negative capacity, little agency, and ineffectual verbal action (Chronicles and Scripts), and an expanded self, construed through features such as real and hypothetical action on others, positive mental action and verbal action (Narratives). Other clinical concepts such as the contrastive 'linear/non-linear speech' are associated with logico-semantic complexity.

The appraisal system has also been used to explore the extent and nature of depression in hospitalized patients via their discourse semantics. Using interview data, Tebble (2012) concluded that familiarizing clinical staff with key appraisal systems could help identify undiagnosed depression among inpatients, with the aim of improving their treatment experience, prognosis, and quality of life. Related research by Caldwell et al. (2006) reports on appraisals of well-being among a non-depressed comparison group.

Korner (2015) draws on SFL and anthropomorphic measurement (heart rate, skin conductivity, etc.) to examine 'self' and 'person' as the embodied flux of feeling in a symbolic, acculturated personal context, or what he calls a system of self and other in psychotherapeutic discourse.

'Formulation' (synopses of a patient's presenting condition) is another aspect of psychiatry studied using SFL tools. Formulations produced within intrapsychic models have been found to be more highly nominalized than those produced within intersubjective models, reducing the sense of patient agency, and representing patients as being influenced by 'unseen' forces (Korner et al. 2010). Walsh et al. (2016a) address the need for teaching the genre of formulation to mental health professionals. They examine lexical relations, nominalization, and conjunctions, showing how clinicians' talk shapes their developing understanding into a logical

formulation. In a related paper, Walsh et al. (2016b) consider how mental health patients are represented differently in handovers, particularly in terms of transitivity roles, being construed as objects and beneficiaries rather than agents or actors (see Eggins et al. 2016). The authors conclude that such representations need to change, just as handovers should include patients as interlocutors (Walsh et al. 2016c).

There is a substantial body of SFL-informed research on couples counselling (e.g. Muntigl 2004, 2006; Muntigl et al. 2013). In one of the few SFL-based health discourse monographs, Muntigl (2004) reports client change over six sessions of narrative therapy. In Muntigl's analysis, clients initially produce recounts (after Martin and Plum 1997) as a means of problem identification, then get scaffolded by therapists into a more expository mode, which foregrounds causal relations and mental projection. Like Moore's (2004) HIV study, the construal of semiotic agency is particularly salient here (*X has got you thinking/put that in your head*, etc.). Finally, in the 'developed semiotic repertoire', clients return to narrative mode but now include complication and resolution and dispersed evaluation. Muntigl (2006) explores the concept of 'macrogenre' using counselling data, and Muntigl et al. (2013) identifies resources through which therapists and clients achieve affiliation.

Although research on spoken language is dominant here, the written linguistic correlates of mental states have also been examined. Nagar and Fine (2013) report that subjects with current depression used more elaboration, more extension, and less enhancement than previously or never depressed subjects in a free writing task. Severity of current and lifetime depression was associated with the extent of this preference, which Nagar and Fine interpret in terms of impaired concentration. An alternative explanation might see these patterns as semantically motivated – construing a factive, unchanging world, on the one hand, or a world of cause and effect and different subjective perspectives, on the other (see Henderson-Brooks 2006a).

### 25.2.3 Mediating the Clinician–Patient Interface

Work outlined in this section aims to transform processes or objects that mediate how doctors and patients interact – such as medicines information leaflets, question prompt sheets, and using interpreters.

#### 25.2.3.1 Medical Interpreting

Studies of healthcare interpreting constitute one of the largest bodies of SFL work on language and medicine, much of it by Tebble and her students (including Tebble 1993, 1996a, 1996b, 1998, 1999, 2003, 2008, 2012, 2014; Hirsh 2001; Caldwell et al. 2006; Willis 2001). This work has informed curricula for interpreters (Tebble 1996b) and for training physicians who work with them (Tebble 1998, 2003).

Drawing on Hasan (1996) and Sinclair and Coulthard (1975), Tebble provides a ranked scale of discourse structures for spoken discourse. At the 'top' level, generic structure potential (GSP) of interpreted professional consultations[3] is given as follows (Tebble 2008:152):

> Greetings^Introductions^(Contract)^Stating/Eliciting Problem^Ascertaining Facts^(Diagnosing Facts)^Stating Resolution/Exposition^(Decision by Client) ^Clarifying Residual Matters^Conclusion^Farewell

Such a model allows interpreters to map their 'location' and pace their energy around the critical parts of the consultation.

Interpersonal meanings are a focus in interpreting, and Tebble (1999) theorizes the teaching of interpreters to 'read' the tenor of physicians' consulting styles, using 'Exposition' moves in two specialisms. Appraisal has been deployed (Willis 2001; Hirsh 2001) including studies of depressed patients (e.g. Tebble 2012). A German study (Bührig 2004) highlights the textual function, showing how a doctor and an untrained interpreter used different 'linguistic action patterns' for obtaining informed consent (see also Torsello 1997).

#### 25.2.3.2 Written Information for Patients and Carers

Written information – often still presented to patients on paper – plays an important role in mediating face-to-face clinical communication. Clerehan (2014) offers an excellent overview which points out that, for all its dynamic complexity, the patient's story in consultations remains their own, but written material testifies to 'the commonness of the disease experience, implying appropriation and "generification" of their story by the doctor' (Clerehan 2014:212). Patient engagement with such material remains a complex and under-researched phenomenon. Very little research has involved linguistic methods or considered culturally and linguistically diverse groups, with developers and researchers relying largely on readability scores and 'industry standard' checklists that often correlate poorly with patient-reported effectiveness (Clerehan 2014).

Alternative approaches include Clerehan and Buchbinder's (2006) analysis of eighteen patient information leaflets. Their Evaluative Linguistic Framework (ELF) (see also Clerehan et al. 2005; Hirsh et al. 2009) has been used to compare medicine labelling in two countries (Connor et al. 2008), and to study decision aids, patient package inserts, and consent forms in Australia, Denmark, and Norway (e.g. Askehave and Zethsen 2003).

Similarly, Moore and colleagues (Moore and Wegener 2010; Aslani et al. 2010) find that Consumer Medicines Information leaflets (CMIs) have unusual and uncomfortable combinations of field, tenor, and mode, arguably inconsistent with shared decision-making. Recommendations include equipping writers with concepts around context and its textual realization,

[3] Tebble extends her model to 'dialogue interpreting' including legal and bureaucratic contexts.

so they can control tenor as field varies within texts, using an authoritarian tone when necessary (*Do not take this medicine if you are pregnant*), but not across all sections. Compared with CMIs from other English-speaking nations, Australian CMIs showed disrupted cohesive harmony (Moore and Wegener 2010; Moore 2010). This is partly because writers assemble CMIs from pre-written paragraphs, but the implicit goals of such texts constitute another factor; these goals include protecting drug companies (who develop such documents) from legal harm. While their findings informed document redesign (Aslani et al. 2010), one aspect considered too controversial to include in the national recommendations was the observation that patients/readers interpreted statements of drug purpose (e.g. *Lipitor is used in people with high cholesterol who have high blood pressure and coronary heart disease or are at risk of a stroke* ...) as statements of likely benefit, thus overestimating the chance of personal health benefit (Moore 2010).

Written information can also be about healthcare processes. Kealley et al. (2004) examine a pamphlet aimed at empowering patients and relatives in a critical care unit to be active in the healthcare process. Contrary to its purpose, the pamphlet depicts staff as retaining great authority in a way that restricted relatives' actions and interactions, thus reinforcing passive and compliant behaviour among relatives and patients. This study is one of the few that does not assume the neutrality of 'information' for patients and relatives and uses linguistic concepts to explore its value.

Eckkrammer (2004) examines medical self-counselling texts and hypertexts, showing that layers of intersemiosis were already present in late fifteenth-century texts, and discussing the specific affordances of hypertext for this register. One finding of interest is that most diagrams in self-counselling texts had an illustrative function only.

#### 25.2.3.3 Decision Aids

An increasingly used mediation of clinician–patient dialogue is the patient decision aid – a multimodal discourse technology for supporting shared decision-making around treatment and testing. See Section 25.3 for an extended example from genetic counselling for breast cancer (Lobb et al. 2006).

In the context of colorectal cancer screening, Smith et al. (2008) draw on Clerehan's work to tailor a decision aid for low-literacy patients. Although both high- and low-literacy groups preferred the revised design, the low-literacy participants felt the information was not directive enough and appeared unfamiliar with metadiscourse around informed choice.

Decision aids now include online interfaces that map individual patient characteristics onto large data sets to customize prognosis and treatment recommendations, such as deciding about chemotherapy for cancer (e.g. Predict n.d.). Many are designed for clinicians but are used in consultations with patients or by patients alone. One of their effects is to widely expand the degree and types of distributed agency in the consulting room. Little

linguistic research has been done on this, but see Bloor (2016) on potentially misleading construals of terminal illness in online prognostic information.

#### 25.2.3.4 Social Media

Using a 'big data' approach, McDonald (2016) and McDonald and Woodward-Kron (2016) have explored interaction in an online mental health support group (approximately 6,000 members generating eight million words of text). They show how users comply with the discursive norms of the target group over time, how this compliance is realized through mood and transitivity choices, and how such transformation is likely to be therapeutic itself and support better clinical interaction and outcomes. These observations resonate with Moore (2004) on viral load and identity in HIV, and Fleischman (1999) on identity in obscure conditions. McDonald's additional findings include a shift from seeking information to providing social support as users gain experience in the group, during which 'socio-semiotic processes' move from Matthiessen's (2013) 'sharing and reporting' to 'expounding and recommending' (see Bowcher, this volume).

### 25.2.4 Healthcare as System and Institution

The small but growing amount of research linking clinical communication to 'hard' health outcomes confirms the importance of detailed descriptions of consultations and non-clinical interactions around health topics, using functional models of language such as SFL. However, it is important that such research does more than simply 'tweak at the margins' of practices and systems.

Iedema (2006, 2007) points out that medicine has increasingly become accountable to other professions such as nursing, administration, and IT specialists, as well as to healthcare 'consumers' and their caregivers. This means that medical discourse should not be studied *in vacuo*. Iedema criticizes the separation of studies of doctor–patient interaction, on the one hand, and of medical documentation (and policies), on the other, arguing that the 'medical dependencies' that shape clinical interaction need to be treated as part of the discourse analysis 'proper'. In other words, professional expertise and judgement is not left to an individual's understanding of best practice – as a nurse, doctor, or other clinician – but is governed by institutional agency (Candlin and Candlin 2002; also see Sarangi and Roberts 1999).

#### 25.2.4.1 Adverse Outcomes

Increasingly, health discourse research has been concerned with reducing medical error and promoting patient and staff safety, often with substantial impact on practice.

One intervention with the potential to substantially reduce adverse outcomes is to improve clinical handovers (ACSQHC 2010) – where patients are

moved symbolically and/or physically between nodes of responsibility in the health system. Health systems worldwide have made considerable efforts here, largely through standardized protocols such as the iSBAR tool, but scant improvement has occurred (Slade and Eggins 2015). One explanation is that protocols such as iSBAR fail to treat communication as inherently interactive (Eggins and Slade 2012).

While some authors suggest standardization itself may be the problem (Patterson 2007; also see Butt et al. 2016), Slade and colleagues argue that standardizing can be helpful (McGregor et al. 2011), and it is the attempt to describe a staged, dialogic genre without the appropriate theoretical understanding of language that is the problem. This, sadly, is a recurring theme across different areas of medical discourse: despite more than fifty years of ethnomethodology and sociolinguistics of health, tools for communication in healthcare rarely draw on appropriate resources to model genre and are often still caught in a 'representational bias' (see Moore 2004). Nevertheless, in the handover context, communication training via functional linguistic models has been able to produce behavioural change (Slade and Eggins 2015:198).

A recent volume (Eggins et al. 2016) based on 829 audio and video recordings in Australian hospitals includes examination of bedside nursing handovers (Eggins and Slade 2016), emergency department shift handovers (McGregor and Lee 2016), inter-hospital transfers (Geddes et al. 2016), and mental health handovers (Walsh et al. 2016b, 2016c) among others, along with instructional resources for health professionals. A further topic explored by this team is the role of humour in handovers and in healthcare more generally (Eggins and Slade 2012; Eggins 2014). Handovers in the multilingual context of nursing in Pakistan, complicated by various factors including low levels of literacy in English (which is the language of hospital records), are the subject of new SFL-related research (Mahboob 2017).

When errors or near misses do occur, the way that healthcare systems respond is crucial: work by Iedema and colleagues has had substantial impact here. Their research for the Australian Commission on Safety and Quality in Health Care (Iedema et al. 2008) was instrumental in achieving ministerial endorsement of a national system for critical incident reporting, helping to change the culture around medical error in Australia from one where clinicians were advised not to talk to patients or families when things went wrong, to one of much greater transparency and reflexivity, although healthcare staff still need to 'learn to be sorry on an organizational basis' (Iedema et al. 2009:266). Related work documenting patients' experience of adverse events has helped convince health governance bodies that patients want and need explanations from clinicians when things go wrong (Iedema et al. 2011), and also that patient experience can itself provide crucial missing information about adverse events (Walton et al. 2017).

Iedema's research group has also transformed handovers from ambulance officers to emergency intake nurses (Iedema et al. 2012), and has recommended new genres of family conferencing within critical and end-of-life care (Sorensen and Iedema 2006). Current work addresses infection control (Wyer et al. 2017). The group's innovations in video ethnography are well recognized among healthcare researchers. For example, Wyer et al. (2017) have nurses view video footage of their interactions with patients, along with footage of patients analyzing the videos of their infection-risks, giving affective views of infection control systems. This is a good example of research that does not treat clinical interaction as 'quarantined' from institutional policy.

#### 25.2.4.2 Clinical Teams

A small number of studies using SFL have examined clinical interactions that do not involve patients as interlocutors or readers. Santiago et al. (2011) studied Medical Emergency Teams (MET) in Australian hospitals – itinerant teams of clinicians who provide emergency care and high-risk patient identification outside the walls of ICUs. Drawing on Hasan's (1996) 'generic structure potential', this research shows that there is substantial variation in the nature of MET interactions and activities in different hospitals.

Routine interaction between members of surgical teams has been the focus of a major Australian study. Through this project, linguistics and semiotics have contributed a way of understanding surgery – and healthcare more generally – as a highly complex 'realizational system' (Butt 2008; Butt et al. 2016). Analysis of language, gaze, and body alignment patterns in surgical interaction has supported arguments for a registerially sensitive approach to proxemics using SFL principles (Moore 2006) and for a 'language' of surgery (Cartmill and Butt 2016). Body alignment between senior and trainee surgeons has been shown to contribute crucially to the construal and negotiation of agency in the surgical process, and to the phasing and layering of professional and pedagogical activities (Moore et al. 2010; Moore 2016). The study also explores the operationalization of Halliday's distinct notion of register, critically engaging with Hasan's system of Message Semantics (see Moore's case study in Lukin et al. 2011; also see Moore 2016). Analyses show how senior surgeons use subtle variations in command type to control the phasing of surgery and to accomplish critical moments such as 'swapping sides' with their trainees. Recommendations include the need to make such interpersonal and registerial competence a component of professional expertise. Under the leadership of the surgeon researcher on the project, this approach has become a cornerstone of the surgical training programme established as part of a new medical school and hospital at Macquarie University.

#### 25.2.4.3 Medical Informatics and Computational Linguistics

A number of studies aim to characterize medical registers, including synchronic and diachronic variation in medical language. Although not designed to inform activities to improve health or health care, they nevertheless help understand the medical/health context and how underlying societal changes may be linked to changes in priorities and practices in health. These include Martinez-Insua and Perez-Guerra's (2015) study of Theme patterns in early Modern English medical texts, using a two-million-word corpus from 1500–1700, showing variation in theme type as a function of tenor, and Zinn and McDonald's (2016) corpus-based transitivity and mood analysis of 1.9 million articles from the *New York Times* between 1964 and 2014, which found a growing incidence of meanings around risk in health journalism accompanied by increasing reference to scientific expertise and increased individualism.

Van Moll and O'Donnell (2004) have demonstrated computer recognition of generic structure in medical discourse, using medical discharge notices (MDNs) as their primary example genre, which they consider a subtype of business letter. Their work provides an interesting example of the interdependence of different genres within a single professional domain.

#### 25.2.4.4 Material Settings in Healthcare

Innovative work on space and medicine, based on SFL principles, has been conducted by Stenglin and Foureur (2013). Stenglin's scale of the degree of boundedness that architectural spaces create was used to understand the types of birth spaces that help women feel safe and secure. Their study offers ways of 'designing out fear' to increase the likelihood of normal birth in the context of worryingly high rates of Caesarian delivery in Western settings.

#### 25.2.4.5 Medical Education, Training, and Research

Scholars using SFL tools have made substantial contributions to medical education, including the challenges arising from culturally and linguistically diverse patient and health worker groups.

For example, focusing on register, Woodward-Kron et al. (2014) have developed curricula and award-winning multimedia resources around communication skills for International Medical Graduates (IMGs). Woodward-Kron (2016) shows how IMGs partially deploy the discursive patterns associated with patient-centred communication that are expected of Australian medical trainees; Pryor and Woodward-Kron (2014) examine IMGs' telephone consultations with senior doctors; and Woodward-Kron and Elder (2016) discuss language testing for internationally trained clinicians.

Elsewhere, this group reveals that, among culturally and linguistically diverse (CALD) groups, consenting to a clinical trial means 'family consent', so ethics committees must allow novel discourse processes if CALD research participation is to improve (Woodward-Kron et al. 2016). Woodward-Kron's

group has published widely on healthcare communication, including a systematic review of communication skills training outcomes, which they argue are limited by a close focus on behavioural outcomes at the expense of understanding language and communication (Denniston et al. 2017).

Public health postgraduate education has been studied by Lander and colleagues. For example, Lander (2014) evaluates asynchronous online discussions and concludes that ambiguity in tenor roles contributes to student dissatisfaction with such a course component – a finding that is generalizable to tertiary online discussions as a whole. Lander et al. (2010) discuss the benefits of online delivery for teaching clinical safety.

Analyses of student writing include studies of medical students' knowledge and reasoning in examination texts (Fraser and Gannon 2003) and of the degree of reflection in students' essays about dissecting their first cadaver (Chan and Shum 2011). Analysis of spoken classroom discourse includes Chang's (2017) study of textual and multimodal aspects of English Medium Instruction in Chinese Medical Sciences classes.

Several SFL-informed studies have refined our understanding of the medical research article as a genre, identifying ten to fifteen rhetorical moves and some of the lexicogrammatical features that constitute them, and delineating obligatory from mandatory moves (Fryer 2012; Nwogu 1990; Nwogu and Bloor 1991). Nwogu in particular focuses on thematic progression and cohesion. Because English is used extensively for publishing medical research, these studies orient themselves to explicit instruction in research writing for medical graduates whose first language is not English, while other work analyzes medical research articles for finer insights into register variation itself (e.g. Biber and Finegan 1994).

A sobering finding in the medical education literature is that, as medical students pass through their degrees, they generally lose faith in social approaches to medicine that include sensitivity to patients' life contexts – and male students show greater dismissal of social approaches than female students (Woloschuk et al. 2004). SFL-based research could help explain this problem, including how pedagogic interactions erode students' initial values.

#### 25.2.4.6 Shaping Illness, Treatment, and Prevention: Culture, Environment, Social Marketing

SFL research is now appearing on cultures and practices outside healthcare delivery that have a strong influence on health, including preventive medicine.

In the UK, Brookes and Harvey (2015) critique the fear-inducing, commercially funded public health campaigns that raise public awareness of adult-onset diabetes but fail to address factors such as the price and availability of unhealthy food, and work cultures that make exercising difficult. Elsewhere, these authors critically compare multimodal discourses promoting breastfeeding and baby formula (Brookes et al. 2016), an area also

addressed by Sheehan and Bowcher (2017). Prevention is the focus of Körner et al.'s (2004) transitivity analysis of how HIV+ interview respondents constructed their sexual partners rather than themselves as agentive with respect to the 'unsafe sex' which caused their infections.

Harvey and colleagues also critique commercialization and commodification in the National Health Service, medicalization in UK/Western society, and the pharmaceutical industry's role in these processes (e.g. Harvey 2013), resonating with Australian work on direct-to-consumer advertising of prescription pharmaceuticals (Mackenzie et al. 2007) and consumer medicines information (Aslani et al. 2010; Moore 2010). Teenagers' use of the Internet for information on sexual health/identity (Harvey et al. 2007), depression (Harvey 2012), and anorexia (Mullany et al. 2015) has also been studied.

Other SFL research which interrogates the cultural emergence and transformation of medicine includes Kappagoda's (2004) study of the co-evolution of science and medicine with grammatical and semantic resources in ancient Greek, and of systems of meaning in contemporary epidemiology (Moore and Grossman 2003) and evidence-based medicine (Moore 2007). Additionally, Körner and Treloar (2006) examine representations of people with HIV and Hepatitis C in medical journal editorials.

This section suggests there is scope for SFL to target issues that account for a larger component of the 'burden of illness' than clinical communication. One underexplored area, following Sontag (1978) and Fleischmann (1999), is the metaphors that drive and divide health discourses and the policies that flow from these, e.g. 'war on drugs' discourses that obscure how some industry research arguably aims to increase addiction in the community (Neil 2017). Other opportunities include the work of lay carers and the relation between health policies and clinical interaction.

Structural issues too important to ignore include the persistent health gaps between privileged and less privileged groups, and the mechanisms for these on which SFL has had very little to say. We might also critically examine discourses through which we explain such patterns as 'equity gaps', rather than perhaps 'exploitation inherent in our social structures' (Hage 2017), as well as the visual semantics through which health determinants are modelled, as in Figure 25.1.

## 25.3 Exemplifying SFL Analysis of Language and Medicine

Before concluding this chapter I briefly illustrate one SFL approach to language and medicine from a collaboration with clinicians on genetic counselling for women with a family history of breast cancer (Butt 2006; Lobb et al. 2006; Moore and Butt 2004). The study combines contextual, semantic, and multimodal analysis (text and image relations) with reception studies, and connects analysis to contestable intellectual and political agendas in medicine.

This collaboration began with a conundrum: research had shown that women from families with a high risk of breast cancer persistently overestimate risk: linguistic consultants were invited to analyze twenty transcribed consultations to help explain why risk was so misunderstood, even after specialist counselling (Lobb et al. 2006).

The study produced a map of the typical discourse strategies used in breast cancer counselling, including semantic networks that set out how critical choices in generic phases were realized (after Hasan 1996).

A three-phase broad generic structure potential was derived from the twenty consultations:

Who are you? ^ What is a gene? ^ [What forecast? (^Go back and talk)]

In Phase 1 the counsellor establishes the patient's values, information thresholds, anxiety, and general risk category from family history and previous tests. In Phase 2 the counsellor explains the scientific basis of risk by setting out dependencies between the main concepts, including *gene*, *chromosome*, *DNA*, *replication*, *mutation*, *purpose,* and *penetrance,* along with statistical interpretations. Phase 3 is a consideration of how these generalities apply to 'you' in terms of risk, knowledge, and possible action. Phase 4, an optional phase which depends on the answers in Phase 3, sends the presenting woman back to their mother, sister, daughter, etc., to learn more about the family and consider having a test.

This illustration focuses on Phase 2, coined the 'Genes Talkfest' by clinicians. A range of productive interpersonal, textual, and experiential strategies were used in this challenging discursive context. Yet, although counsellors typically gave accurate statistics when explicitly estimating risk, they also produced 'latent patterning' (Butt 1988) that, arguably, overemphasized genetic causality and individual cancer risk (Moore and Butt 2004; Lobb et al. 2006). The healthcare literature is clear that risk perception is an emotional issue as well as a rational one, but very little literature acknowledges that implicit meanings also operate in the rational (experiential) domain, shaping participants' understanding of risk in an inappropriate way.[4] Consider the following excerpt from Consultation 82, Turn 161.

> Counsellor: When we talk about an inherited tendency to breast cancer, what we're talking about really are genes that are passed through the families. And in some cases seem to cause breast cancer (Patient: mm). So a gene, well the way I describe **a gene is a bit like an instruction to the body** and we've got thousands of these instructions that determine hair colour and eye colour and they influence our height and our weight. And we've also got a set of genes or instructions that are involved in preventing cancer from happening. (Patient: mm) So what they normally do is **act a bit like a brake in the body.** And we know that some of these genes are involved in preventing breast cancer from occurring. They don't completely prevent it

[4] 'Framing effects' for risk statistics (Tversky and Kahneman 1981) are, however, well known within health communication research.

completely but um they certainly make a difference to the chance that somebody gets breast cancer. [turn continues]

Five key things characterize this excerpt, each indexing a dimension of meaningful choice at the level of context of situation, arguably at Butt's (2004) level of 'move'; see Figure 25.2.

- The rationale for this move is posed by the counsellor rather than the patient[5] (which we could perhaps gloss as *you need to understand 'inherited tendency' in genetic terms*);
- The move comes as a long monologic bloc (punctuated by patient backchannelling);
- The conceptual sequence of the move focuses on biological processes rather than, say, social or statistical groupings;
- The move draws heavily on naturalizing metaphors (*instructions* and *brakes,* whose functions are commonly known) but does not de-automatize or limit these metaphors; importantly brake failure in a car invariably generates some observable problem, preferably a gentle roll but often a fatal crash, whereas carrying BrCa1 or BrCa2 mutations only leads to breast cancer in approximately 40 to 85 per cent of women, and to early death only in a proportion of those, so the analogy is problematic;
- Semantic tendencies in the spoken move are reinforced by the images used (see below).

At the level of abstraction below 'Move' (see Figure 25.3 – roughly the stratum/rank of Butt's (2000) 'Argument', Halliday and Matthiessen's (1999) 'Sequence', and Cloran's (1994) 'Rhetorical Unit'), the most crucial features are as follows.

- The 'rational strategy' of the explanation begins with analogy, indicating what a gene is 'like'; in greater delicacy this can be specified as an example of Wittgenstein's 'family resemblance' – that is, similarities that are *not* the result of a common factor (brakes and genes and instructions);
- One alternative rational strategy, which appears in the latter arguments about hair colour and genes, is to use an explicit 'x causes y' strategy;
- Other possible strategies are not taken up, such as instantiation or taxonomy: utterances such as *a gene is a bunch of chemicals the body uses in making proteins and other molecules* are not found.

Taken together, these choices of context- and semantic-level patterning in the Genes Talkfest stress the agentivity of genes in causing and preventing cancer and draw attention away from environmental and non-genetic hereditary aspects of cancer and its prevention – meanings that could 'hose down' the scare factor of genes. Such implicit semantic patterns appear to strongly affect risk perception despite explicit caveats.

[5] The woman in this consult is not strictly speaking a patient, but this term is used for clarity rather than 'woman' or 'woman from a high breast cancer risk family', etc.

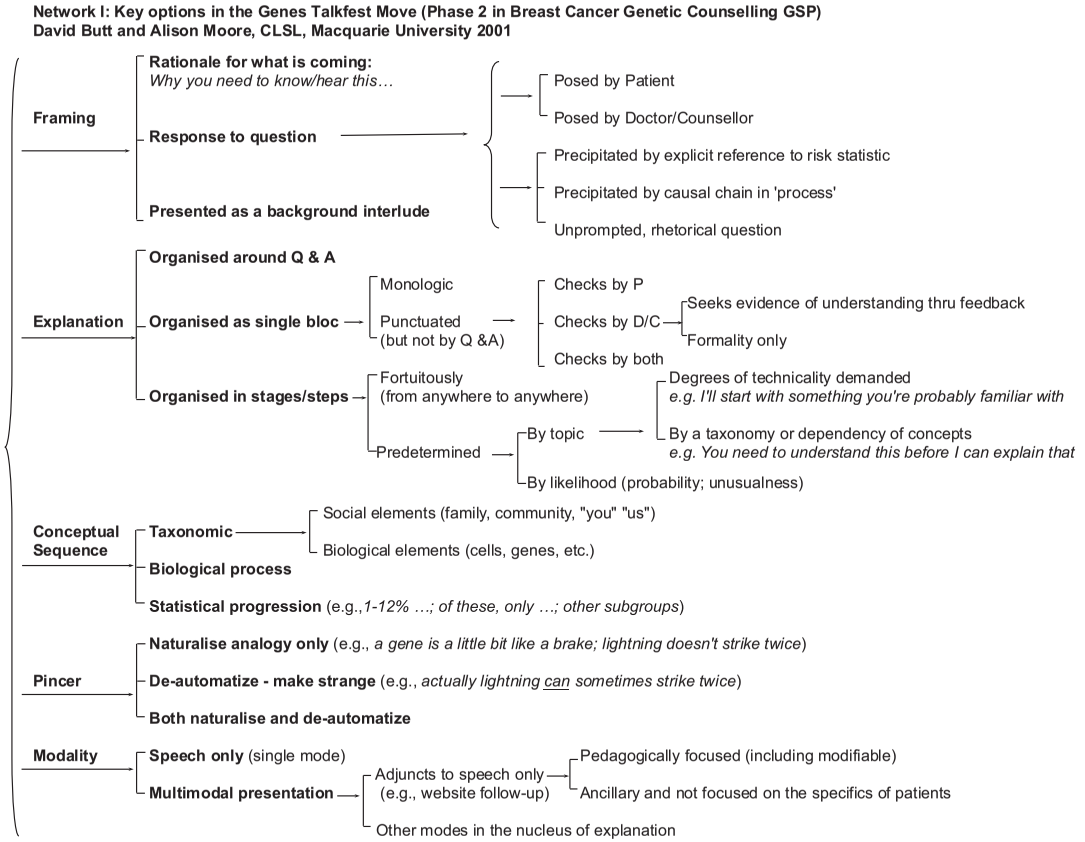


**Figure 25.2** Network of key contextual options in Phase 2 of genetic counselling (after Moore and Butt 2004)

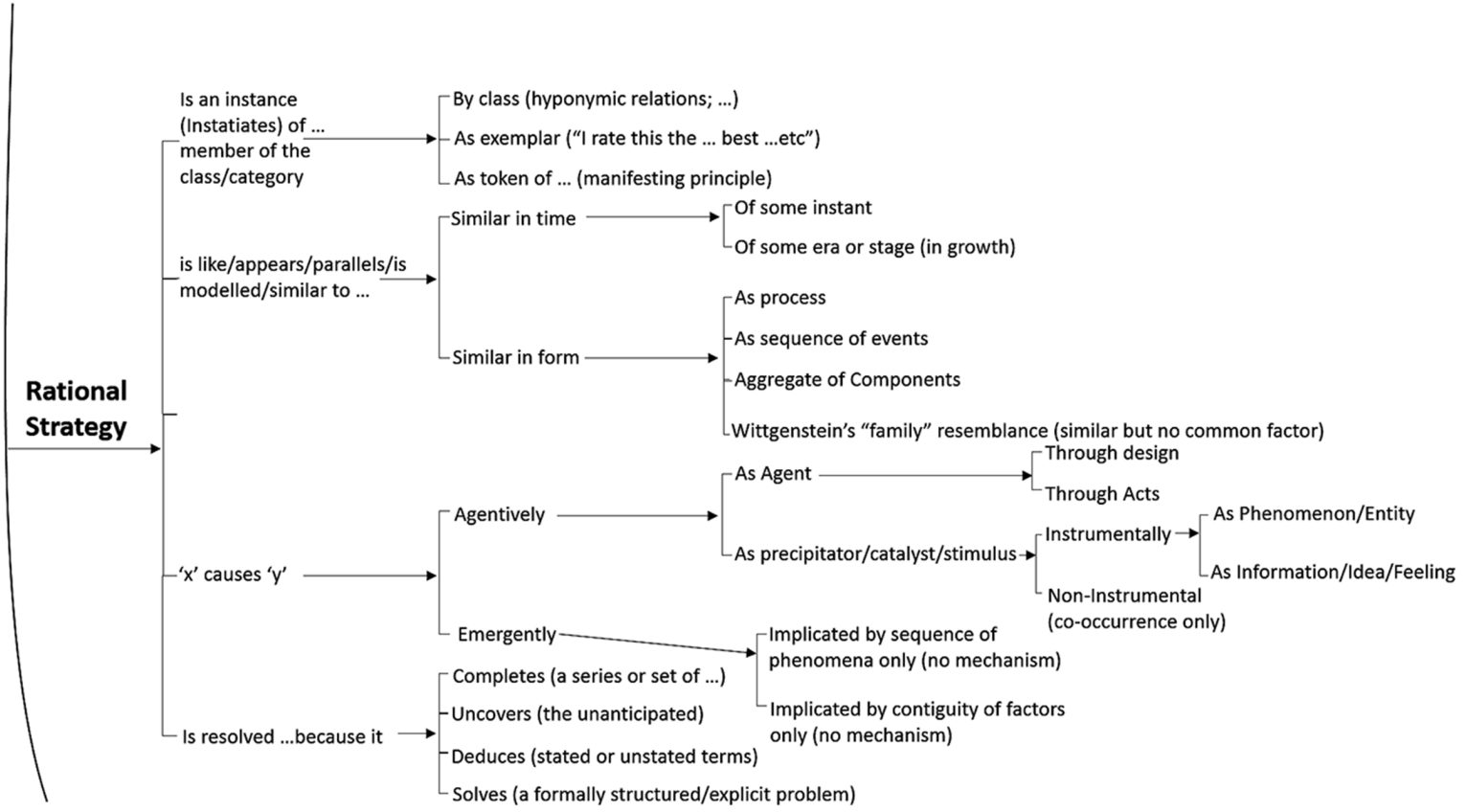


**Figure 25.3** Network fragment: key semantic options in 'rational strategy' within Phase 2 of genetic counselling (after Moore and Butt 2004)

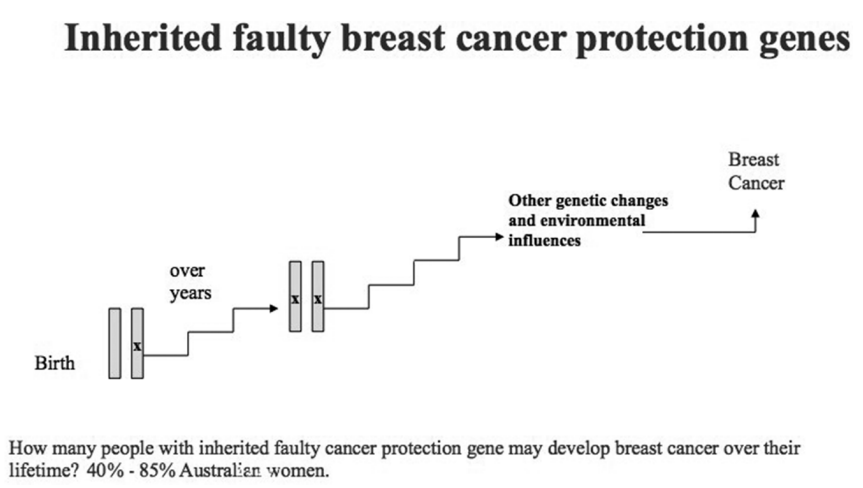


**Figure 25.4a** Original image used in decision aid for genetic counselling (after Lobb et al. 2002)

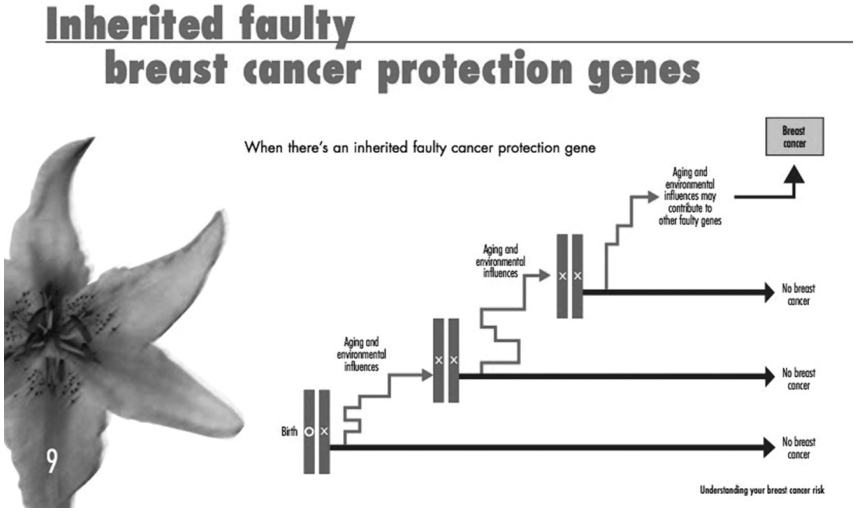


**Figure 25.4b** Revised image used in decision aid for genetic counselling (after Lobb et al. 2002)

A final point concerns text–image intersemiosis. Images used in decision aids for genetic counselling also adopted a rational strategy that arguably overemphasizes the link between genes and cancer in a highly implicit way. Figure 25.4a shows a widely used diagram in which the x-axis conflated time and cancer risk. A highly plausible interpretation of this image is that if a woman has an inherited faulty gene, she will inevitably get breast cancer, since breast cancer is, graphically, the only outcome. While it may technically be true that anyone who lives long enough will get some form of cancer, this diagram is misleading and was amended to include alternative endpoints of 'no cancer' (see Figure 25.4b).

## 25.4 Concluding Comments

As this chapter indicates, SFL has generated a significant body of research on language and medicine. Areas where impact has been reported include mental health services, cancer care, HIV, emergency, surgery, handovers in hospital departments, critical incident reporting, written medicines information, and health curricula, confirming that most SFL research on health focuses on spoken communication. This chapter also confirms that interpersonal meanings have been given most attention. Four identifiable impacts on practice stand out, namely, the introduction of critical incident reporting in all Australian states based partly on Iedema et al. (2008); the withdrawal of CA125 testing in ovarian cancer surveillance in New South Wales, Australia, following Jordens et al. (2010) and other research; the National Accreditation Authority for Translators and Interpreters in Australia (NAATI) curriculum based on Tebble's cumulative work (especially 1996b); and Woodward-Kron's influence on curricula for International Medical Graduates in Australia (e.g. Woodward-Kron et al. 2011, 2014).

Following on from Halliday et al.'s (2007) imagining of SFL-based logotherapy, applying a functional linguistic lens to healthcare is helping to show how and why some forms of dialogue may be therapeutic, and also helping to identify those particular patterns of speaking that produce developmental and restorative effects (e.g. Butt et al. 2012). As a test-bed for SFL, research on language and medicine has sharpened our understanding of linguistic complexity, including structural complexity within and between genres, semantic counterpoint and its ensemble effects, and complex contexts, fleshing out some pictures and contradicting some received views. Hospitals and other medical settings have proven excellent examples of complex realizational systems.

Given that SFL is a theory that grounds meaning in social structure and culture, there has been surprisingly little attention paid to so-called 'structural' barriers to health and health equality, though this appears to be changing. However, the health impact of structural and preventive health measures themselves can be hard to gauge, let alone the effect of discourse research on such measures, so it will remain a challenge for health linguists to defend such work in a 'research impact' era.

Importantly, SFL's capacity for explaining and addressing community problems in terms of class, consciousness, and code – where relevant – has so far been underutilized but offers potential. Increased attention here would link healthcare findings to SFL work on other registers and policy issues. SFL may provide more productive explanations of differences in morbidity and mortality between SES groups, differences that have too readily been couched in terms of health literacy, but may really be about coding orientation and shared cultural capital.

Compared with other fields of application in SFL, healthcare research has been relatively loosely organized. The sense of a 'shared problem' is not as strong as in, say, educational semiotics or the study of children's language development. This may be related to differences in tenor relations between medicine and linguistics: for medical practitioners, linguistics is an unlikely technical authority/resource, whereas it can more easily serve this role in other contexts such as education. The inclusion of a chapter on medicine and linguistics in the present handbook is a good start towards building stronger networks around SFL and health discourse.

Although this chapter started out as a discussion of SFL work on language and medicine, it should now be clear why I prefer a broader focus on health and promote the notion of SFL health linguistics as a coherent field of application. It is hoped that this apparent growth area will strengthen its capacity to provide timely and actionable results to those involved in health policy and healthcare delivery, and will continue to extend its reach to domains outside healthcare that impact on health and well-being. An important strategy for achieving these goals is for health linguistics to deepen its critical engagement with the theoretical concepts and descriptive systems of SFL, as well as with other linguistic and social-theoretical approaches generating fruitful work in this field.

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