## RECENT DEVELOPMENTS IN SYSTEMIC FUNCTIONAL LINGUISTICS: A REVIEW ARTICLE

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**Abstract**: This review article examines two major works comprising a total of six volumes on Systemic Functional Linguistics (SFL). One is a collection in five volumes of selected works representative of the history of SFL from its origins to the present, co-selected by one of the major figures in this linguistic model. The other is a single-volume handbook to SFL with essays by a wide range of SFL practitioners on an equally wide array of topics. (Review Article)

**Keywords**: Systemic Functional Linguistics, linguistics, grammatics, grammatical description, context, register, genre.

Systemic Functional Linguistics (SFL) was introduced to New Testament Greek studies in an article on ambiguity and vagueness by Stanley Porter and Nigel Gotteri in 1985. The paper was first delivered at the International Systemic Functional Linguistics Workshop at the University of Stirling, UK, in 1984, and since that time there has been a growing abundance of linguistic research within a broad SFL framework (and SFL is broad, as the essays in the volumes below illustrate). It is probably accurate to say that SFL has become the leading school of linguistics—where an explicit linguistic theory is identified—within New Testament Greek linguistics study. These New Testament Greek linguistics works are spread across a relatively wide array of linguistics topics, with some of them being heavily theoretically driven and others direct applications of the theory

1. Gotteri and Porter, "Ambiguity."

to various New Testament texts. Some of the major works that utilize the SFL framework in various ways (I do not mention numerous articles or chapters, but only monographs and the like) are Stanley E. Porter on verbal aspect, 2 Jeffrey T. Reed's overview of the "standard theory" of the SFL model, Gustavo Martín-Asensio on transitivity, Stephanie Black on conjunctions,<sup>5</sup> Ray Van Neste on cohesion in the Pastoral Epistles,<sup>6</sup> Matthew Brook O'Donnell who introduces corpus linguistics (a natural pairing with SFL), 7 Cynthia Long Westfall on discourse analysis, <sup>8</sup> Jae Hyun Lee on discourse analysis, <sup>9</sup> Beth M. Stovell on metaphor, 10 Gregory P. Fewster on lexicogrammatical metaphor, 11 Wally V. Cirafesi on verbal aspect in Synoptic parallels, 12 Ronald D. Peters on the Greek article, 13 and Christopher D. Land on the metafunctions, 14 among possibly others. This does not include a number of eclectic models that mention and utilize SFL in passing, mostly Michael Halliday's

- 2. Porter, *Verbal Aspect*, which was also instrumental in inaugurating discussion of verbal aspect in New Testament Greek, with verbal aspect being a neglected topic in SFL (see Bache, *English Tense*). Cf. Porter, *Linguistic Analysis*, which also draws heavily upon SFL; and Porter, *Letter to the Romans*, which is a SFL register analysis.
- 3. Reed, *Discourse Analysis*. By "standard theory" I refer to the SFL architecture promoted especially by Halliday based on English and developed prior to but also reflected in the first edition of Halliday, *Introduction to Functional Grammar* (IFG).
  - 4. Martín-Asensio, Transitivity-Based Foregrounding.
- Black, Sentence Conjunctions, although she also draws upon Relevance Theory.
  - 6. Van Neste, Cohesion and Structure.
  - 7. O'Donnell, Corpus Linguistics.
  - 8. Westfall, Discourse Analysis.
  - 9. Lee, Paul's Gospel.
- 10. Stovell, *Mapping Metaphorical Discourse*, although she uses SFL in relation to cognitive metaphor theory.
- 11. Fewster, *Creation Language*, who also works with lexical monosemy, not a theory integrated into SFL.
  - 12. Cirafesi, Verbal Aspect.
- 13. Peters, *Greek Article*, who reformulates the article as resembling the relative clause.
  - 14. Land, Integrity of 2 Corinthians.

early to middle career work. In other words, SFL has provided a robust linguistic model that has inspired a wide range of development and applicability in environments far beyond those originally conceived for the model, which involved primarily English language (and in its earliest stages, Chinese) and especially English language education.

The volumes discussed in this review article, although they (unfortunately and inexplicably) do not discuss any of the SFL research in New Testament Greek mentioned above, overall offer major introductions to the wide range of linguistic work done within the traditional streams of SFL—mostly work done in English, with some Chinese and a few other languages, and applied to a number of contexts, such as register variation and education. I will treat the five volumes edited by J.R. Martin and Y.J. Doran first, 15 and then the handbook edited by Tom Bartlett and Gerard O'Grady. 16

The five volumes edited by Martin and Doran, Systemic Functional Linguistics, in the Critical Concepts in Linguistics series by Routledge, are further divided within each volume. Volume I on grammatics (Halliday's term for the study of grammar) is divided into seven parts. These seven parts cover foundations, scale and category grammar, system, structure, metafunction, grammar and lexis, and probabilistic systems. Those who know SFL will recognize several of the major historical and foundational theoretical grammatical categories within SFL, including its early development as a scale and category grammar, its differentiation between (paradigmatic choice) and structure (syntagmatic structure), its definition of metafunction, the inclusion of lexis as the most delicate grammar, and the importance of probability within language systems (seven of the 17 essays are from the 1950s and 60s, although five are from the 1990s). As a result, many of the expected seminal essays for development of SFL thought are rightly found within this volume. These include R.H. Robins's (a teacher of Halliday) argument for a word and paradigm approach

<sup>15.</sup> Martin and Doran, eds., Systemic Functional Linguistics.

<sup>16.</sup> Bartlett and O'Grady, eds., Routledge Handbook.

to grammar, "In Defense of WP," a foundational distinction arguing against the then contemporary linguistic trend (note discussion of Greek on p. 30, arguing against the typical morphological-lexical approach to morphology). Halliday's "Categories of the Theory of Grammar" (unfortunately minus most of the footnotes) is responsible for the emergence of scale and category grammar, Halliday's extension of J.R. Firth's (his other major teacher's) theories. There are seven essays on system, well illustrating how system (paradigmatic choice) came to be a dominant contribution of SFL to linguistics and essential to its theoretical architecture, illustrated by some of the first system networks published. The papers included here are Halliday's "Syntax and the Consumer" and "Some Notes on 'Deep' Grammar," in which he works out some of the basic principles of system networks, such as delicacy and simultaneity, and others by Richard Huddleston, "Systemic Features and Their Realization," Martin, "The Meaning of Features in Systemic Linguistics," Kristin Davidse, "Agnates, Verb Classes and the Meaning of Construals: The Case of Ditransitivity in English," Martin and Christian Matthiessen, "Systemic Typology and Topology," and finally one by Matthiessen on computer text generation, "The Systemic Framework in Text Generation: Nigel," all exploiting the nature of systemic choice and realization. The fourth part of this volume contains three papers on structure or the syntagmatic dimension. This section includes Halliday's "Types of Structure," in which he distinguishes between univariate and multivariate structures, and essays by Huddleston, "Rank and Depth," and Richard Hudson, "Constituency in a Systemic Description of the English Clause," on various related topics such as rank and constituency. Hudson posits SFL as having few immediate constituents (as opposed to many). The next section has three papers on the emerging (originally four) metafunctions, or functional categories of meaning. Halliday opens the section with "Options and Functions in the English Clause," in which some ambiguity over form and function has already crept into the system networks, as he attempts to differentiate the functional potential of language. Halliday continues with "Modes of Meaning and Modes of Expression," in which he correlates meanings with structures within the metafunctions. Martin closes the section with "Functional Components in a Grammar," a detailed review of the complexity of system networks that leads to discussion of the relation of metafunctions to contextual variables. The sixth part contains Ruqaiya Hasan's (Halliday's wife) well-known "The Grammarians' Dream: Lexis as Most Delicate Grammar," still worth reading as a fine example of how to attempt to integrate lexis with grammar as a system of delicacy. The final part and essay is Halliday and Z.L. James's "A Quantitative Study of Polarity and Primary Tense in the English Finite Clause." For Halliday, it is not enough to speak of language potential but he wishes to speak of probabilistic systemic choice. This essay lays out his major initial ideas on the topic. This first volume is in many ways an essential volume for those who are interested in understanding the roots and origins of contemporary SFL, as its basic architecture is being formed and exemplified in many of these foundational essays.

The second volume is a bit of an anomaly, as it takes up the subject of grammatical description, but focuses upon languages other than English (or Chinese) to which SFL has been applied. SFL has recently been trumpeting its application to other languages, probably because so much of its work, at least in the mainstream, over the years has been confined to English, with the occasional nod elsewhere (eight of the nine essays in this second volume were published in the 1990s or 2000s). It is widely recognized that in many ways SFL is not a theory of language so much as a model of the English language. This volume attempts to show otherwise. The first essay (part 8, with continuous part enumeration throughout all five volumes), by Halliday, is entitled "Systemic Grammar and the Concept of a 'Science of Language.'" In this important essay—in my experience widely neglected throughout SFL—Halliday lays down thirteen principles for grammatical description. These include recognition that such categories are designed to be explanatory not ontological, some of which categories may be descriptive and others theoretical, but defined in relation to each other. They are identified at various levels and are used to

explain the functions of language, not its formal properties. No matter the origin of the category it must be explained in reference to the language that is being described, that is, real instances of language, in which the categories used are exemplified in realizations. This is an essay that bears repeated reading. The next part (9) contains seven descriptions: Hudson on Beja syntax and morphology; Alice Caffarel on French tense; Beatriz Quiroz on Spanish mood; Fang Yan, Edward McDonald, and Cheng Musheng on Chinese; Martin on case in Tagalog and on logical meaning in Tagalog; and then Trevor Johnston on Australian sign language. Whatever interest one may have in these descriptions, I could find no sustained discussion of verbal aspect (to be distinguished from discussion of process types). The final essay, in part 10, is by Matthiessen on "Descriptive Motifs and Generalizations." This is a lengthy essay (133 pp., the longest in the entire collection) that tries to establish principles for typological comparison of languages within a SFL framework. I note (so far as I can tell) that there are one reference to Greek (modern; on polarity; II, p. 383) and occasional references to Russian (3 times) and some other Slavonic languages, mostly in some charts (the index in volume V only cites Greek once in volume III and Russian once in volume III, but none of the other Slavonic languages). The introduction to the volume itself mentions the languages included in the volume in which Matthiessen's essay first appeared, and Greek and Slavonic languages do not appear in the list or in the list of other languages studied (see II, p. 5). Overall, I found this a disappointing volume, because there has been significant and even abundant work done in both ancient Greek and Slavonic languages (see comments below), and perhaps others.

The third volume is organized around the topic of "around grammar." The twelve essays in this volume are arranged around five parts. The editors point out that this volume moves outward from the grammatics outlined in the first volume to encompass "adjacent strata" and "extra-linguistic semiotic systems," such as Systemic Functional Grammar and Systemic Functional Semiotics (SFS) (III, p. 1). The first, part 11, concerns

phonology. The first chapter, by Robins entitled "Aspects of Prosodic Analysis," is another bridging chapter, in which Firth's theories are introduced to the SFL framework. Prosodic analysis in what has come to be called the London School (from Firth down to Halliday) attempts to move beyond the phoneme to larger units of sound structure. The second chapter, Halliday's "A Systemic Interpretation of Peking Syllable Finals," is important for its introduction of multi-layered treatments of phonology. Likewise, William McGregor in his "Towards a Systemic Account of Gooniyandi Segmental Phonology" introduces a ranked scale for discussion of phonology, this time for an Australian language. McGregor also draws upon some categories that are not typically and extensively discussed in mainstream SFL (such as markedness, a term not included in the index). The final essay, again by Halliday, concerns "The Tones of English," a summative essay concerning SFL English phonology (even though it was written in the 1960s, much earlier than McGregor's essay from 1992). Part 12, the second part in the volume, contains only two essays on the topic of grammatical metaphor. This restriction to two essays is a disappointment and missed opportunity, as this is a topic of great importance and where SFL has made a significant contribution to a subject of recent significance in competing linguistic models (such as cognitive linguistics and its cognitive metaphor theory). Both essays are by Halliday, "Language as Code and Language as Behaviour" and "Things and Relations." In a wide-ranging essay on dialogue and the mood system, one of the important insights of the first essay is the distinction between congruence and incongruence, foundational to the notion of grammatical metaphor. However, the definition of congruence in relation to typicality indicates that more needs to be done with the notion of all language use as metaphorical. This insight opens up more possibilities within the SFL notions of metaphor. The second essay focuses on ideational metaphor, in particular what Halliday calls "the semogenic power of nominalization" (III, p. 147). The theory is much broader than that, however, encompassing a number of semantic shifts. The next part, part 13, concerns grammar and discourse. Again, in light of much recent work,

including work to establish SFL as a form of discourse analysis or text linguistics, I think it is unfortunate that we only have two essays on this topic. Nevertheless, the essays emphasize the textual metafunction, an important contribution of SFL to discourse studies. The first essay here is by Peter Fries, "On the Status of Theme in English." This essay deals with the notions of theme and rheme in relation to given and new, categories that SFL has appropriated in new ways from Prague School linguistics. The second essay, by Hasan on "Coherence and Cohesive Harmony," is her fundamental paper on cohesive harmony analysis, in which she defines the type-token relations and their significance for cohesion. The next part (14) concerns discourse semantics. For the same reasons noted above, I believe that it is unfortunate that a greater number of important essays was not included (the editors seem to think similarly, III, p. 7). Nevertheless, the two essays that are included are important statements in the development of SFL. The first is by Margaret Berry, "Towards Layers of Exchange Structure for Directive Exchanges." Berry has made a major contribution to the SFL literature on exchange structure as she has extended early work within SFL, and she continues to do so. The second is by Martin, "Beyond Exchange," where he introduces a discourse semantic category of appraisal, a development by Martin and those who work with him in the Sydney school to capture how thoughts and feelings are evaluated. The final part, part 15, concludes with two essays in Systemic Functional Semiotics, in which SFL as a linguistic model is extended beyond language to other modalities. Modalities are also a topic of much recent discussion. The first of the two essays is by John Bateman entitled "Towards a grande paradigmatique of Film" and the second, by Martin, is "Multimodal Semiotics: Theoretical Challenges." The first provides an example of how to do SFS for film, and the second is an omnibus treatment of SFS that encompasses its broad various components. There is much of value in this volume, although I would have liked more on both grammatical metaphor and discourse semantics.

Volume IV arguably encompasses the heart of much significant recent research in SFL: the notion of context

especially in relation to register and genre. Context has a long history in SFL as being a fundamental concept, inherited from Firth (who acquired it from the anthropologist Bronislaw Malinowski), stratified by Halliday, and further refined and reinterpreted again by Martin, to the point of division within SFL ranks. Within discussion fall the concepts of register, context, and genre, terms distinguished and conflated in various ways. Halliday (along with Hasan) believes that register is a configuration of context, while Martin equates register and context; Halliday tends to equate register and genre, while Martin stratifies register separately from genre. The two main positions are distinguished here in the essays. The first part (16) of the volume, on register, contains five essays, well illustrating the development of the notion of register. The first is Firth's "A Synopsis of Linguistic Theory, 1930-1955." This essay could well have appeared in volume I of this collection, because it provides a useful summary of both Firth's linguistic thought and the fundamental categories of what developed into SFL. However, the essay is placed in this volume because it discusses terms such as context of situation (from Malinowski) that are central to notions of context, register, and genre. Firth's comment regarding morphology being "overrated" (IV, p. 38) has perhaps hindered application of SFL to morphologically rich languages (such as Greek and the Slavonic languages). Michael Gregory, in "Aspects of Varieties Differentiation," makes a fundamental differentiation between dialectal and diatypic variation, with the former language according to its users and the latter according to its uses—what later came to be called register. Fundamental to Gregory's distinction is the difference between what he calls situational and contextual factors, the first representing register (diatypical) and the second contextual (dialectal) concerns. The essay by J. Ellis and J.N. Ure, "Language Varieties: Register," a frequently cited compendium of knowledge on register, traces the development of register, recounting the varied terminology that has been used for it and its components (field, tenor, mode, style, role, etc.) and how they see register as reflecting situational categories realized by linguistic ones. Their section on register and literature is brief, but especially important for those

studying other than occasional texts (upon which there is very little being said in most current SFL circles). Halliday's essay "An Interpretation of the Functional Relationship between Language and Social Structure" is one of the few excerpts from a larger single-authored work, this one his Language as Social Semiotic. He pursues the distinction between dialectal and register variation, with linguistic structure realizing social structure. The final essay of this part is an excerpt from Matthiessen's "Register in the Round," a conspectus view of the notion of register that makes clear the distinctions in various theories. Matthiessen provides helpful graphic displays of some of these distinctions, including Halliday and Hasan's vs. Martin's views of register and genre (noted above). As the introduction to the volume states, Matthiessen clarifies "Halliday's use of the term register to characterize the realisation of field, tenor and mode in language, and also Martin's use of the term to refer collectively to field, tenor and mode systems" (IV, p. 3). Matthiessen also addresses the notion of what constitutes register variation, and whether this consists of differing probabilities within the linguistic system, a common core or assemblage of linguistic systems with differing register-specific systems, or different systems for each register. These are fundamental distinctions that are often overlooked when the term register is bandied about. Part 17 discusses genre. The four essays begin with T.F. Mitchell, "The Language of Buying and Selling in Cyrenaica," an early and still important essay in Firthian linguistics that results in suggestive ideas on how genres differ on the basis of expectations regarding elements of the text. Hasan in "On the Notion of Text" develops much more fully the elements of text in relation to the textual metafunction. Hasan defines the term "contextual configuration" as a means of describing the field, tenor, and mode of a text that are realized in particular structures. Martin's "Modelling Context" chronicles the development of his thought regarding text and context. After noting several different attempts to model context (by Halliday, Gregory, Ure and Ellis, and Fawcett), Martin argues for the stratification of register and genre by presenting seven major arguments. These are important arguments to consider in

understanding his stratification of context of situation into the two levels of register and genre. The result is that Martin's register encompasses field, tenor, and mode, whereas for Halliday register is the realization in language of the components of context. Martin extends his notion of genre further in "Macrogenres." Martin observes that most texts discussed in SFL fit onto a page, but that that is inadequate for discussing the organization of larger texts. As a result, he posits a difference between elemental and macro genres. Martin's theories of genre have been further developed, especially in language education (see below). The final part (18) of this volume contains three essays on the users and the uses of language. Martin presents "The Development of Register," in which he shows how users adjust their language according to both their context of use and who they are as users. Hasan's "Semantic Variation and Sociolinguistics" argues against the views of other sociolinguists (such as William Labov) that linguistic variation indicates semantic variation. The final essay, again by Martin, is "Semantic Variation." Martin assumes work in realization in SFL and expands upon it by discussing instantiation and adding the category of individuation. The first two parts of this volume are arguably two of the most important in the collection, comparable to the value found in volume I. However, I note that there is relatively little in this volume that explores the idea of language as verbal art (as Hasan referred to it), reflecting an important, even if truncated period in development of SFL in literary analysis.

The fifth and final volume of the collection is on language in education. This volume consists of twelve essays in four parts. This volume well illustrates how SFL has developed with educational interests in mind and is roughly structured around Halliday's conception of language education. The first part (19) concerns language-based theory of learning, which develops the foundational ideas in Halliday's essay, "Towards a Language-based Theory of Learning." From early in his career, Halliday was interested in how his ideas of language could impact education, something brought to significant fruition since his move to Australia in 1976. The essay's title describes his vision

for education, as "an alternative to psychology-based theories of learning, which either ignore language or treat it as just one learning domain, and which rely on common sense or formalist models of language rather than social semiotic ones" (V, p. 1). The next two essays treat examples of implementation of these ideas: John Pearce, Geoffrey Thornton, and David MacKay, "The Programme in Linguistics and English Teaching, University College London, 1964-1971," and Robert Veel, "The Write it Right Project." Veel's essay recounts the development of the written genre, register, and social context based educational model that came to be known as the Sydney school. The next part, part 20, concerns learning language. Both essays in this section are by Clare Painter. The first, "Learning Language," is about language development from a functional standpoint. Extending the work of Halliday in his Learning to Mean, Painter uses examples from her son Hall to articulate the stages in language development. The second, "The Role of Interaction in Learning to Speak and Learning to Write," attempts to show how "language is learned by using it" (V, p. 148). The next part (part 21) is about learning about language. Joan Rothery in "Learning about Language" describes how students learn through use about the structure and the contexts in which language is used. Geoff Williams in "Ontogenesis and Grammatics" draws upon the Russian psychologist Lev Vygotsky in arguing that the study of grammatics aids in learning language. The final part, part 22, contains five essays on learning through language. The first is Brian Gray, "How Natural is 'Natural' Language Teaching." Gray argues against the so-called process model of language instruction in which the teacher is a respondent to the student, claiming that this is not in fact natural. More natural is for the teacher to take responsibility with the student by providing genre-based models of language. Gray calls this process "scaffolding," in which "parents and children jointly construct texts that are based on shared experience" (V, p. 268). Martin in "Mentoring Semogenesis" draws upon the work of Basil Bernstein—as do all of the essays that follow—to promote the notion of genre-based literacy teaching. This theory is labeled as "subversive" in comparison to other pedagogical models,

drawing upon inter-group transmission, rather than intraindividual or acquisitive characteristics of other models (see V, p. 294; cf. also V, p. 408). Geoff Williams in "Literacy Pedagogy Prior to Schooling" examines the relationship between socioeconomic autonomy, reading at home, and later educational success, illustrating Bernstein's theory of social location and its influence on education. In Frances Christie's "Curriculum Macrogenres as Forms of Initiation into a Culture," she shows the pedagogical importance of the notions of genre and register in generating student work. In the final essay, David Rose's "Towards a Reading Based Theory of Teaching" continues the emphasis above on the importance of reading in the learning process. There is probably much to be learned from this work with language acquisition to inform the teaching of ancient languages as well, especially regarding the importance of reading and grammatics.

The five Systemic Functional Linguistics volumes present an imposing collection of essays from the inception to the present of what has come to be known as SFL. The *Routledge Handbook of Systemic Functional Linguistics* is a suitable snapshot of the current state of play within this field of linguistics. Edited by two scholars from Cardiff, the Routledge handbook provides a suitable support of and contrast to the five-volume collection. In some ways, even though only a single volume, the nature of the handbook provides for wider scope of presentation. The handbook is divided into five parts, with the parts notionally containing essays that reflect the categories that Halliday used in IFG: focusing upon relationship to the clause.

The editors, Tom Bartlett and Gerard O'Grady, open the volume with an orienting introduction. I find it interesting that they acknowledge organizing the volume according to Halliday, but they use the second edition of IFG of 1994. Is this because the volume has taken that long to produce (doubtful) or is it that they, like some others, have found the continual inflation of IFG unhelpful? They don't say. They identify four distinctive features of the handbook: its attention to theory rather than simply application, its critical orientation to its topics, its attention to the three SFL models (that they identify), which they label as IFG

(for Halliday), the Sydney school, and the Cardiff school, and the inclusion of some chapters on languages other than English (in particular Spanish, Japanese, French, and Chinese). I appreciate the attention to theory in the volume and its invitation to contributors to take a critical stance. However, there is even more diversity to SFL than they acknowledge, and they are unnecessarily restrictive in the languages that they treat as much more has been done in some others. The introduction then briefly introduces the very basic architecture of SFL, including stratum and rank, metafunctions, axis and delicacy, and instantiation.

Part 1 is concerned with offering a "theoretical overview," and consists of four essays. The first, by John Bateman, is on "The Place of Systemic Functional Linguistics as a Linguistic Theory in the Twenty-first Century." Bateman offers a helpful means of distinguishing views of language according to where language is located—either in contexts (SFL is probably best placed here, although it also is located in groups), texts, heads, or groups. He also attempts to relate theories and models of language to larger philosophical considerations and how data is handled by these various models. He then defines the three elements within SFL, systemic, functional, and linguistics. He traces SFL's linguistic pedigree, notes the importance of system networks, and places it within the broad range of functionalist theories. Bateman concludes by responding to some of the frequent questions raised regarding SFL, such as what happens to syntax (it is reconceived in light of context), what happens to pragmatics (context affects it also), and the relation of SFL to cognitive theory (SFL is divided on this). Elissa Asp then asks "What is a System? What is a Function? A Study in Contrasts and Convergences." She provides very useful, basic definitions of the elements of a system (her two examples are formal, rather than semantic, and not entirely convincing), what is meant by function, and then in particular the conception of language function in Sydney vs. Cardiff grammar (she does not distinguish IFG or Halliday from Sydney grammar). She then compares system and function in the Chomskyan Minimalist Program and in SFL, a somewhat odd comparison in light of the volume, and perhaps not entirely appropriate (or convincing). Margaret Berry

then discusses "Stratum, Delicacy, Realisation and Rank." This chapter is concerned with, first, what Berry calls stratal and metafunctional layering within SFL, which takes into account context; delicacy as dependent choice; realization as a relationship between and within strata; and rank in various strata (she acknowledges and responds to criticism of the notion of rank, a response worth noting). The fourth chapter is by Robin Fawcett on "From Meaning to Form in the Cardiff Model of Language and Its Use." This chapter sits oddly in this section, as it is much longer than the others and explicit in presenting Halliday's model and then the Cardiff Model in significant detail. One important feature is how Fawcett attempts to bring the "communicating mind" into the linguistic equation, but does not equate his notion of cognitive linguistics with what is usually given that term (he prefers to call that "Conceptual Linguistics," p. 74).

The second part of the volume focuses upon the clause rank, with nine chapters included. These are divided into roughly three parts, standard SFL, Cardiff Grammar, and languages other than English. The first four are concerned with the metafunctions, one of the hallmarks of SFL. Kristin Davidse in "Systemic Functional Linguistics and the Clause: The Experiential Metafunction" illustrates both the positive and negative developments within SFL, especially in relation to the experiential metafunction (note that there is no chapter on the ideational metafunction, indicating the perspective of this volume on that issue within Halliday's developing thought). After a useful introduction of the major theoretical assumptions on the experiential metafunction, Davidse offers a historical overview that clearly illustrates some of the major problems in Halliday's developing definition and the definitions of others. The notion of agnation is useful, but the general sense of unease without resolution remains, especially for a handbook such as this. Davidse notes three critical issues: alternative proposals, delicacy, and languages other than English (Tagalog is the major one here, but no mention of Greek). In discussing current research, Davidse differentiates between what she calls "core" work in SFL and eclectic research, which is a prelude to her noting how various other linguistic models might speak to SFL (she is more eclectic). I found this chapter a disappointment in light of the purpose of a handbook such as this. The second chapter, by David G. Butt and Jonathan J. Webster, "The Logical Metafunction in Systemic Functional Linguistics," provides a fairly clear and straightforward introduction to the logical metafunction in relation to taxis, logico-semantic types, and recursion, as part of clause complexing. One still wonders whether taxis and logico-semantic types are both necessary. However, the chapter goes astray when it chooses to engage in disputing Chomsky by arguing for a strong human evolutionary model and against human uniqueness. There is clearly too much linguistic defensiveness here, to the point of demoting the human and language. Thomas Hestboek Andersen writes on "Interpersonal Meaning and the Clause," where he compares standard theory SFL (what he calls "IFG traditional") and Cardiff grammar around the notions of speech functions, mood types, modality, and the clause. This essay problematizes both notions, showing the major inconsistencies in the two-level traditional view and also some of the limitations of the one-level Cardiff view, especially the question of the number of speech functions, whether the systems are semantic, and whether goods-andservices even have a place in a constructivist approach (a very good question to raise). In the chapter on the "Textual Metafunction and Theme: What's 'it' about?" Gail Forey and Nicholas Sampson describe how Theme and Rheme are the major system of the metafunction. They focus upon "point of departure" as the semantic system of which Theme is the lexicogrammatical realization. Their presentation is relatively clear, although they do not always address some of the terminological and descriptive problems until later in the essay, where they acknowledge the difficulty in defining Theme. Their attention to the Prague School and to Martin and Rose's work on hyperTheme and macroTheme is a welcome addition to the usual description. O'Grady writes on "Intonation and Systemic Functional Linguistics: The Way Forward," focusing exclusively on English because only English has been examined within SFL. Guowen Huang in "Theme in the Cardiff Grammar" (placed here

rather than before the earlier chapter on the textual metafunction) assumes knowledge of Halliday's Theme and Rheme to present the Cardiff approach, which exclusively deals with identifying types of theme. Huan is correct that "the concept of Theme is not as clear as one may think" (p. 175), but the Cardiff labeling system can hardly be heralded as a "simplification" of the Halliday scheme. After a useful introduction to the history of and various types of transitivity, Amy Neale treats "Transitivity in the Cardiff Grammar," which is essentially reduced down to a discussion of the three major and several minor process types within the Cardiff grammar. I think it is doubtful this scheme will prevail. The final two essays treat languages other than English. Jorge Arús Hita treats theme in Spanish (where he usefully debates the status of "elided Subjects") and Kazuhiro Teruya discusses mood in Japanese.

The third part focuses in eight essays upon what is below the clause. Paul Tench in "The Phoneme and Word Phonology in Systemic Functional Linguistics" treats phonology of the word, especially syllables. Edward McDonald writes on "Form and Function in Groups." In one of the most insightful essays in the volume—and one of the few that discusses ancient Greek, because of its place in linguistic history—McDonald traces the history of discussion of the group/phrase, especially in relation to how its conceptualization has influenced and been shaped by what he calls the "accretionary" tendencies of SFL. He provides the basis for a much more restrained dependency model of SFL, without unnecessary multiplication of structures within the metafunctions. Lise Fontaine discusses "The English Nominal Group: The Centrality of the Thing Element." Fontaine emphasizes that not nearly as much effort has gone into modeling the nominal group as other systems of the grammar. She traces the development of the structural analysis of the nominative group from all four metafunctions to the current logical and experiential (it is arguable if this distinction is really needed), and the continuing (but is it really that problematic?) distinction between the Head (logical) and Thing (experiential) that are sometimes conflated and other times not (some of Halliday's system networks are less convincing than others). The

problematic function of of within nominal group structure adds to the problems she identifies. Gordon Tucker revisits his work on "The Adjectival Group." There is the question not only of how to model the adjectival group (variously conceived) but of whether it is indeed necessary at all. Many may find this chapter an instance of overburdening a theory with terminology. Beatriz Quiroz addresses "The Verbal Group" in order to raise questions about its status within SFL. Quiroz traces the history of the verbal group and then its questioning by the Cardiff grammar along several lines. Quiroz several times raises the question of how categories developed for English may not be directly relevant for other languages, as she evidences in her study of Chilean Spanish. Alice Caffarel-Cayron then treats the French verbal group and Eden Sum-hung Li the nominal group in Chinese. The section closes with Miriam Taverniers on "Grammatical Metaphor." This is a very useful chapter that lays out the evidence that grammatical metaphor has not been fully modeled or incorporated into SFL. She not only defines ideational and interpersonal grammatical metaphor, but shows how conceptions of it differ within standard SFL, Sydney SFL, and Cardiff grammar, as well as in some other developments in conjunction with other functional models.

The fourth part treats the notion of above the clause, with seven chapters. The first, by Bartlett, covers "Context in Systemic Functional Linguistics: Towards Scalar Supervenience?" in which he first traces the development of the notion of context from Vygotsky to Bernstein to Malinowski to Firth to Halliday and Hasan, and then problematizes the notion of firstand second-order context, especially in light of Halliday's Marxist materialist views. Bartlett differentiates between environment and what he calls sctx (second-order context instantiated in the text). Drawing upon other discussions of this problem of activation, construal, congruence and the like, he proposes the term "scalar supervenience" as a possible way of handling the problem. In her chapter on "Field, Tenor and Mode," Wendy L. Bowcher further addresses the notion of context and its relationship to the components of Field, Tenor, and Mode. This fine essay briefly traces the developments of these categories, including their relationships with context and metafunctions. The description of Martin's development of the terminology probably does not fully appreciate the difference in the results over such issues as genre and register. She concludes by offering practical steps for examining Field, Tenor, and Mode. Ben Clarke treats "Cohesion in Systemic Functional Linguistics: A Theoretical Reflection." This disappointing chapter contrasts Halliday and Hasan with Martin on cohesion, noting the textual versus distributed nature of cohesion within their differing perspectives. Clarke does not treat cohesive harmony analysis, but instead presents his own proposal to explain subject-ellipsis, requiring that he draw in Roland Barthes's structuralism as a foil. Alison Rotha Moore in "Register Analysis in Systemic Functional Linguistics" raises the right questions regarding this important, although arguably less urgent, concept in SFL. She sees an overall consistency in Halliday's definition, even if there are numerous questions still remaining regarding register variation, iconicity between strata, and even semantic descriptive adequacy. The next three essays address questions from the Sydney model. The first is Ken Tann on "Context and Meaning in the Sydney Architecture of Systemic Functional Linguistics." Tann offers a concise exposition of the major differences, emphasizing such major features as the strata of genre and register as context, the stratum of discourse semantics, the more complexified notion of meaning, and the roles of instantiation, individuation, and ideology. He offers an unfortunately superficial analysis of Obama's presidential acceptance speech. In Teresa Oteíza's "The Appraisal Framework and Discourse Analysis," another dimension of the Sydney model is discussed. This clear exposition of appraisal as consisting of systems of attitude, graduation, and engagement notes that appraisal is "a system of interpersonal meanings situated at the level of discourse semantics" (p. 458). She notes that appraisal has been applied to languages other than English (but no mention of ancient Greek). The big question is whether appraisal adds anything that is not already encompassed within the interpersonal system, especially as the systems are virtually all realized lexically. The final essay, Sheena Gardner on "Systemic

Functional Linguistics and Genre Studies," situates the Sydney school contribution to genre studies that develops Halliday's apparent conflation of genre and register and Hasan's generic structure potential into a distinct level. There is no doubt that in this area SFL has made a major contribution to genre studies and to educational linguistics. However, the definition of genre as "system of staged goal-oriented social processes" (p. 477, citing Martin) does not necessarily resolve the major questions of genre, as Gardner points out. In fact, it probably raises more new questions.

The fifth and final part is on SFL as an appliable theory, reflecting Halliday's description of SFL. There are eleven chapters in this part, including a relatively brief concluding chapter. Alison Ferguson, Elizabeth Spencer, and Elizabeth Armstrong write on "Systemic Functional Linguistics and Clinical Linguistics," showing how SFL has played a role in dealing with communication disorders. In one of the most interesting and important chapters in the volume—although oddly placed in this final part rather than earlier—Donna R. Miller writes on "Language as Verbal Art." Miller takes up what Hasan called "social-semiotic stylistics" (SSS) and traces the history of discussion of literature from a SFL standpoint, beginning with Halliday in the early 1960s, but influenced by earlier literary-linguistic movements such as the Prague school and Russian formalism, and resulting in the seminal work of Roger Fowler. Miller makes a valiant attempt to revive Hasan's notion of language as verbal art, but well illustrates that as it stands the interpretive apparatus is inadequate to the task. This chapter merits further consideration and development outside the confines of a volume such as this. Bob Hodge writes on "Discourse Analysis," a surprisingly short and compact treatment that tends to equate discourse analysis with Critical Discourse Analysis throughout much of the discussion. There is much more that could be said on this topic. Serge Sharoff in "Corpus and Systemic Functional Linguistics" notes the traditionally close ties between SFL and corpus linguistics on the basis of early work by Firth and Halliday that was attentive to such matters as collocation and textual analysis (the bibliography is relatively

brief, and misses the major work by Matthew Brook O'Donnell). In Kerstin Kunz and Elke Teich's chapter on "Translation Studies," the importance of SFL for translatology is made clear, especially through the concept of register. Register provides a means for modeling the relationship of context to language, which is fundamental to translation as mediating between contexts by means of language. The essay is a bit pedestrian in its treatment of the history and development of the field, which is disappointing because of the importance that SFL maintains within the area of translation studies. Mick O'Donnell writes on "Interactions between Natural-Language Processing and Systemic Functional Linguistics," an essay that points to opportunities rather than accomplishments. I had to chuckle when O'Donnell chastises other SFL followers for not always being willing to "openly share resources" (p. 565) to encourage development, when O'Donnell himself has maintained his own proprietary software for developing system networks. Chris Taylor in "Reading Images (including Moving Ones)" deals with the expansive field of multimodality, in which SFL has taken a major role by providing a linguistic analytic for modes other than language. Anne McCabe writes on "Systemic Functional Linguistics and Language Teaching," an area in which SFL has had a major influence especially in Australia, stemming from Halliday's own early work as a language teacher and development of genre-theory by Martin. There may well be some lessons to be learned here for teaching of ancient Greek. Karl Maton and Yaegan Doran write on "Systemic Functional Linguistics and Code Theory," the theory of Bernstein that has been further developed as Legitimation Code Theory. Bernstein had an important influence upon Hasan, and SFL has responded linguistically to his sociological theories. Legitimation Code Theory has had an important role to play in education. However, there are other areas of extension of SFL that might also have been treated, so it is difficult to know why this chapter was included. Claire Painter writes on "Learning How to Mean: Parent-Child Interaction." Those familiar with SFL will recognize the significance of such interactions in the development of SFL theory, especially as found in Halliday's

own Learning How to Mean on childhood language development (based upon his own son) and as an alternative to Chomskyan theories. The final chapter, by the editors, entitled "Looking Ahead: Systemic Functional Linguistics in the Twenty-First Century," is less a look ahead than it is a summary of what has already been seen, categorized into several possible areas of further exploration: dealing with other linguistic theories, developing existing theories further, describing more languages than English and the few so far done, interacting with other intellectual disciplines, and applying the theory. The volume concludes with further reading, in which there are some helpful lists provided, although apparently no effort to standardize editions (so IFG is referred to in its several different editions), and an index. The index is generally useful but not always complete.

I have tried to offer a number of comments on the volumes and individual essays in the course of this review article. Here I wish to emphasize some broader issues regarding the volumes, taken together and as individual publication projects. The most important comment is that all of those interested in SFL should be grateful for the assembling and publication of these volumes. The set of five volumes ably—if somewhat skewedly—chronicles the development of SFL from its earliest origins to the advanced theoretical model that it is today. The handbook provides generally competent and interesting essays that follow a prescribed pattern in introducing each topic, including its development and key players and issues. I will definitely be recommending both publication projects to others, including especially students, who will benefit from the range of excellent presentations in these volumes.

Having made this general commendatory comment, however, I also wish to make several more critical comments on areas of deficiency. I will treat the five-volume set first. There are several comments to make here. The first, and relatively minor, comment is on technical presentation. The graphics reproduced in the volumes are not particularly well done and detract from the quality of the essays and the overall volumes. This is perhaps partly the fault of the print-on-demand technology, but the

discrepancy between the usual text and the graphics is noticeable. Further, the notes for each essay appear as they did in their original publication. I realize it would have required further time-consuming work, but readers would probably have appreciated the notes being conformed to a standard format. Finally, I note that the index is not complete, and so not an entirely reliable guide to the contents.

A second, and no doubt more substantive, comment is that, despite the thoroughness of presentation, the representation in the five volumes is far from complete. The emphasis of the selected chapters is upon the stream of SFL that originated with Halliday's precursors and then moved to Halliday (with thirteen authored articles included, dating from 1961 to 1998) and then to Martin (with 12 of his! Dating from 1983 to 2012), and hence the traditional or standard SFL and Sydney school SFL. As a result, the flow of the essays apparently frames these volumes as representative of Martin's succession to the place of leadership within the SFL community or at least within the set of volumes (and near equality with Halliday?). I realize that the burden of being an editor is a heavy one, especially if one has been a significant contributor to the field. However, these volumes fail to represent entire areas of SFL. Most notably, the Cardiff school, and with it its most well-known contributor, Robin Fawcett, is missing virtually entirely, as are some of the others associated with Cardiff, such as Gordon Tucker, Lise Fontaine, and the editors of the Routledge handbook. Bartlett and O'Grady. There are other sub-areas of SFL that could have been represented as well, such as Formal Systemic Formal Grammar of Nigel Gotteri, who worked on Slavonic languages (not represented in the volumes), to which I am particularly inclined for its use with fusional and non-configurational languages.

This leads to a third criticism, the lack of attention to what the Routledge handbook calls LOTE (languages other than English). The "General Introduction" (I, pp. 2-5) to the multi-volume work offers a list of languages to which SFL has been applied, but there is no reference to ancient Greek (or any other Greek for that matter) or any Slavonic languages, even though there has been a sizable amount of research and scholarship in SFL used to

examine ancient Greek and Slavonic languages, such as Polish and Bulgarian. Scholars working in these languages are often attentive to the issues being raised in mainstream SFL, especially as applied to English, so it is disappointing that those within the mainstream have not paid more attention to work in other languages, especially when the tradition goes back to earlier times in SFL research and flourishes with its own developing culture of investigation. Some of the reasons may relate to the relative significance of the languages studied for modern educational purposes (a major factor in SFL research), but this cannot entirely explain the situation. One may suspect that the difficulty of the languages involved, their lack of configuration to some of the major languages studied (especially English), and the interests of the originators and major mainstream figures in SFL have all contributed to this situation.

A fourth criticism is that there is some imbalance in topics handled. One can always desire more in particular areas, and such volumes must finally draw the line, but in light of recent research I would have appreciated more essays in especially four areas: register (volume IV), grammatical metaphor (volume III), discourse analysis (volume III), and what Halliday called linguistic stylistics or Hasan verbal art (only mentioned briefly). One of the most important contributions of SFL, because it facilitates linkage between context and semantics, is the developed notion of register. The issues are complex and have tended to divide the SFL community between Halliday's and Martin's ideas, but there is insufficient indication in the collected volumes of the nature of that debate and development and its implications. Similarly, grammatical metaphor represents a signal contribution of SFL to linguistic thought, especially in opposition to cognitive metaphor theories. The two essays on metaphor are simply insufficient to represent this important and growing area of research. In many ways, SFL is a theory of discourse analysis, as some linguists have recognized, and so much more could have been included on the use of SFL as a form of discourse analysis. Finally, Halliday, as well as Hasan, was a part of the broader stylistics movement, but this area has been greatly neglected within SFL (see the essay by Miller in the

Routledge handbook). Several of the critical essays within this area (such as Halliday's treatments of William Golding's *The Inheritors* or a play of J.B. Priestley or Hasan's discussion of verbal art) would have been very welcome, as an important missed opportunity in SFL that one might well wish could be revived as more scholars become interested in SFL as a means of examining literature.

A fifth and final criticism of the five-volume set is to note some of the authors whose works are surprisingly missing, even when multiple essays are found by others. Some of these scholars include (in alphabetical order, including some mentioned above): Christopher Butler, James Catford, Malcolm Coulthard, Robert De Beaugrande, Robin Fawcett, Nigel Gotteri, Helen Leckie-Terry, Geoff Thompson, David Young, and perhaps more by Berry, Firth, Gregory, and McGregor.

In turning to the Routledge handbook, I notice in conjunction with the last point above that there are also a number of contributors who are missing, including both Halliday and Hasan or Martin and Matthiessen. I would also have welcomed a critical comparative essay on SFL and other functional models by Christopher Butler, since he has done such important work on the subject. Other authors who could have made an interesting contribution would have included: Carl Bache, David Banks, Frances Christie, Carmel Cloran, Suzanne Eggins, Peter Fries, Michael Hoey, Susan Hunston, Gunther Kress, Jay Lemke, Annabelle Lukin, Christian M.I.M. Mathiessen, David Rose, David Morley, Mary Schleppegrell, Diana Slade, Erich Steiner, Michael Stubbs, and Paul Thibault, among others. Some of these may of course have declined invitations (a number of these are thanked for reading the manuscript, p. xxiv), and others may have been better qualified in some areas, but my point is that there were plenty of good possible choices from which to create such a volume, and some of them I wish had made contributions.

Whereas the five-volume set was limited in its SFL perspective, the Routledge handbook attempts to be representative. By that, it includes what they call the "IFG Model," along with those of Sydney and Cardiff, although the inclusion of Cardiff is very self-conscious, with a major chapter

by Fawcett that does not sit well within its section, as noted above. The Sydney chapters are better integrated and deal with issues directly related to differing viewpoints, such as register, context, appraisal, and genre. I would mention again that there is in fact even more theoretical diversity to be noted than that, even if these are the three major streams of thought (I am thinking of Formal Systemic Functional Grammar of Gotteri). The same applies to dealing with LOTE. There are, as noted above, selected chapters on a small range of languages other than English (Spanish, Japanese, French, and Chinese), but this list is especially truncated compared to the list of modern languages that have been studied, to say nothing of any ancient languages being given substantive consideration, including ancient Greek as well as now Hebrew, where there has been some recent research.

I close with a final point of technical criticism regarding the handbook: the graphics are not very well presented, again possibly because of the volume being produced as print on demand, and the final part on the appliability of SFL is somewhat idiosyncratic in organization and content. I think that the chapter by Miller on verbal art merited a place in one of the preceding sections in light of the importance of this, even if underdeveloped, topic. The chapters on discourse analysis and translation studies are also very important, even if not as well done as some of the other chapters. The chapter on discourse analysis is far briefer than it could have and should have been, and did not explore some of the discourse analytical potential of SFL. The chapter on translation studies merited further development and perhaps placement in relationship to the one on register. The chapters of this part are otherwise simply one-off chapters on a variety of topics, related to SFL in varying degrees of importance (I also thought the one on Legitimation Code Theory was not well integrated). At the end of the day, however, the Routledge handbook is designed as a means of access to the latest research in various areas of importance within SFL, and that it does very well. The handbook well illustrates the internal diversity of SFL, along with many areas unresolved and uncertain, and open for further work.

We can be thankful for publication by Routledge of both of these projects. Despite the criticisms noted above, these two sets of volumes provide a wealth of information for those new to the subject and for those who are already well-versed in SFL as a means of appreciating it as a linguistic model.

## **Bibliography**

- Bache, Carl. English Tense and Aspect in Halliday's Systemic Functional Grammar: A Critical Appraisal and an Alternative. London: Equinox, 2008.
- Bartlett, Tom, and Gerard O'Grady, eds. *The Routledge Handbook of Systemic Functional Linguistics*. Routledge Handbooks. London: Routledge, 2017.
- Black, Stephanie L. Sentence Conjunctions in the Gospel of Matthew: καί, δέ, τότε, γάρ, οὖν and Asyndeton in Narrative Discourse. London: Sheffield Academic, 2002.
- Cirafesi, Wally V. Verbal Aspect in Synoptic Parallels: On the Method and Meaning of Divergent Tense-form Usage in the Synoptic Passion Narratives. LBS 7. Leiden: Brill, 2013.
- Fewster, Gregory P. Creation Language in Romans 8: A Study in Monosemy. LBS 8. Leiden: Brill, 2013.
- Gotteri, Nigel, and Stanley E. Porter. "Ambiguity, Vagueness and the Working Systemic Linguist." *Sheffield Working Papers in Language and Linguistics* 2 (1985) 105-19.
- Halliday, M.A.K. *Introduction to Functional Grammar*. London: Arnold, 1985; 2nd ed. 1994; 3rd ed. 2004; 4th ed. London: Routledge, 2014.
- ——. Language as Social Semiotic: The Social Interpretation of Language and Meaning. London: Arnold, 1978.
- —. Learning How to Mean: Explorations in the Development of Language. London: Arnold, 1975.
- Land, Christopher D. *The Integrity of 2 Corinthians and Paul's Aggravating Absence*. NTM 36. Sheffield: Sheffield Phoenix, 2015.
- Lee, Jae Hyun. Paul's Gospel in Romans: A Discourse Analysis of Rom 1:16-8:39. LBS 3. Leiden: Brill, 2010.
- Martin, J.R., and Y.J. Doran, eds. Systemic Functional Linguistics. Volume I: Grammatics. Volume II: Grammatical Descriptions. Volume III: Around Grammar: Phonology, Discourse Semantics and Multimodality. Volume

- IV: Context: Register and Genre. Volume V: Language in Education. Critical Concepts in Linguistics. London: Routledge, 2015.
- Martín-Asensio, Gustavo. Transitivity-Based Foregrounding in the Acts of the Apostles: A Functional-Grammatical Approach to the Lukan Perspective. Sheffield: Sheffield Academic, 2000.
- O'Donnell, Matthew Brook. Corpus Linguistics and the Greek of the New Testament. NTM 6. Sheffield: Sheffield Phoenix, 2005.
- Peters, Ronald D. The Greek Article: A Functional Grammar of ó-items in the Greek New Testament with Special Emphasis on the Greek Article. LBS 9. Leiden: Brill, 2015.
- Porter, Stanley E. *The Letter to the Romans: A Linguistic and Literary Commentary.* NTM 37. Sheffield: Sheffield Phoenix, 2016.
- . Linguistic Analysis of the Greek New Testament: Studies in Tools, Methods, and Practice. Grand Rapids: Baker, 2015.
- . Verbal Aspect in the Greek of the New Testament, with Reference to Tense and Mood. SBG 1. New York: Peter Lang, 1989.
- Reed, Jeffrey T. A Discourse Analysis of Philippians: Method and Rhetoric in the Debate over Literary Integrity. Sheffield: Sheffield Academic, 1997.
- Stovell, Beth M. Mapping Metaphorical Discourse in the Fourth Gospel: John's Eternal King. LBS 5. Leiden: Brill, 2012.
- Van Neste, Ray. Cohesion and Structure in the Pastoral Epistles. Sheffield: Sheffield Academic, 2004.
- Westfall, Cynthia Long. A Discourse Analysis of the Letter to the Hebrews: The Relationship between Form and Meaning. London: T&T Clark, 2005.