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## Chapter 10

### Mapping Ideational Meaning in a Corpus of Student Writing

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#### Abstract

In the context of the British Academic Written English (BAWE) project, which aims to characterize student writing across 28 disciplines and four years of study, this chapter focuses on describing what university students write about, or ideational meaning. It focuses on Field, for example on whether students write about people, ideas or scientific entities, and more specifically on Angle on Field (Martin 1993), for example whether these are construed as phenomena (*Mohandas Ghandi*) or as metaphenomena (*Approaches to the study of eminence*). Building on insights from studies of disciplinary variation and progression, and of the nature of Sentence Subjects, an analytical framework is developed. Comparison with findings from studies of professional academic writing from English, History, Psychology, (Macdonald 1994), Science, (Gosden 1993), Economics and Business (Lewin, Fine and Young 2001) demonstrates the potential for Sentence Subject analysis of student writing. Detailed description of the planned 3000 assignments in the BAWE corpus is beyond the scope of the project; thus the focus narrows to mapping Assignment Initial Sentence Subjects. The proposed framework is original both in its intended scope of writing across multiple disciplines and years of study, and in its use of Assignment Initial Sentence Subjects.

#### 1 Introduction

As part of the British Academic Written English (BAWE)<sup>1</sup> project which aims to build and characterise a corpus of 3000 student assignments across disciplines and years of study, this chapter focuses on describing ideational meaning, or what university students write about. It focuses on Field, for example on whether students write about kings or cabbages, and in particular on Angle on Field or how students approach their topics, whether they write about *Time*, *The soit-disant age of absolutism*, or *Recent literature reviews and meta-analyses*.<sup>2</sup> The aim is to develop and test a framework for such description. This chapter starts by arguing for an analysis of Angle on Field through

Subjects. The framework is informed by understandings from studies on variation across disciplines and years of study. The adequacy of using Sentence Subjects for student writing is tested against descriptions of published research across disciplines. Finally a framework is proposed that maps clusters of Field across disciplines and progression across years. Designed to map Field across the 28 disciplines and 4 years of study of the BAWE corpus, the framework is applied to Assignment Initial Sentence Subjects only. The framework enables us to locate and compare Field from specific disciplines and years on a large scale.

## 2 Subjects and Angle on Field

Systemic functional linguistics (SFL) has shed light on the importance of unmarked topical Theme in providing the Angle on the Field of a text (Martin 1993: 224). As our student assignments are almost entirely written in declarative mood, unmarked Theme generally conflates with Subject, as seen in these examples (Subjects in bold):

- (1) **The Dutch Republic** was something of an anomaly in seventeenth century Europe.
- (2) Until the last few decades, **the accepted view amongst historians of Mexico** was that the seventeenth century was indeed one of crisis ...
- (3) **Memory** is a topic of study with which psychologists have grappled experimentally for over a century ...
- (4) **The work of Jean Piaget (1896-1980)** has informed the developmental psychology paradigm for many years.
- (5) **The pursuit of an acceptable definition of schizophrenia** has tested researchers and clinicians since the classifications proposed by K...
- (6) **Escherichia coli O157:H7** is a particularly high-profile bacterium in modern times, not least as a result of its ability to inflict ...
- (7) **Examination of the subcellular distribution of molecules** is an important tool in cell biology.

Analyses of Sentence Subjects in academic writing have led to insights about the epistemological level at which meanings are explicitly construed (Macdonald 1994) and their discourse Domain (Gosden 1993), both of which overlap significantly with Angle on Field for our data.

As suggested by the examples above, Subjects are congruently realised as nominal groups, and carry demarcated ideational-experiential meaning. In contrast with textual and interpersonal meaning, it “is a general principle of linguistic structure that it is the

experiential meaning that most clearly defines constituents.” (Halliday and Matthiessen 2004: 328)

Moreover, while nouns congruently realize entities (or ‘things’) (Halliday 1998: 208), they can metaphorically represent qualities, processes or relators, as in (2), (5) and (7) above. In other words “any semantic element can be construed as if it was an entity (i.e. grammaticised as a noun).” (Halliday 1998: 211) This means that writers have diverse resources for construing experiential meanings as Subjects. When processes such as ‘pursue’ are nominalised as *pursuit*, this not only allows them to occur as Subjects, but also ideationally “creates a universe of things, bounded, stable and determinate.” (Halliday 1998: 228)

With nominalisation, grammatical metaphor and technical language (such as *Escherichia coli O157:H7*) comes the representation of different orders of reality. For example, the Angle on Field is of a different order of reality (Halliday and Matthiessen 2004: 441) in ‘schizophrenia’ and metaphenomena such as *an acceptable definition of schizophrenia*. In this way “ideational meaning is related to the construction of institutional activity (‘naturalised reality’), or Field.” (Martin 2002: 56) This involves not what real world entities are referred to, but rather how reality is construed across disciplines.

It is characteristic of all Fields that they name the things concerning them... and order them taxonomically... Through technicality, a discipline establishes the inventory of what it can talk about and the terms in which it can talk about them. (Wignall, Martin and Eggins 1993: 159-162)

It is what concerns disciplines that we wish to capture with Angle on Field.

Before we test whether this construction of institutional activity is revealed through Sentence Subjects, we turn to research on variation across disciplines and years of study to inform our framework.

### **3 Disciplinary Variation**

Research on the construction of knowledge in sciences and humanities suggests that where sciences use technicality – they “reconstrue its Domains of experience technically by establishing an array of technical terms which are arranged taxonomically” (Wignell 1998: 297) – the humanities use abstraction, shifting from context dependence (*The Cold*

War) to context independence (*the accepted view amongst historians*). Wignell goes on to show how social science discourse uses

much the same resources as scientific discourse in establishing a technical framework which is then used for interpretation. Social science differs from science .. in what it makes technical ... it is the abstract, hypothetical and generic which is being construed technically.” (Wignell 1998: 324)

This is seen in Economics (*collusion*) and Business (*world mergers and acquisitions*).

Similarly, Parry (1998) in her analysis of disciplinary discourse in doctoral theses characterises the language of science as ‘technical and concrete’; the language of social sciences and applied professions as ‘metaphorical, technical and abstract’; and the language of the humanities as ‘highly metaphorical and abstract’ (1998: 297). In other words the social sciences have ‘technical’ language in common with the sciences, and ‘metaphorical and abstract’ language in common with the humanities.

In comparisons of scientific and technological discourse, White (1998) shows sciences’ preference for classical terminology (which allows ready scientific classification; e.g. *angiosperm* and *gymnosperm* are two types of sperm), and technology’s preference for lexical items derived from everyday words, e.g. *memory*, *local area network*, and acronyms (*CD ROM*). These studies all suggest that any framework for characterising Field across disciplines should attend to abstraction, metaphor and everyday vs. technical language.

While broad generalisations with typical examples are possible, the notion of ‘discipline’ is not unproblematic. Divergence is not uncommon across subdisciplines (e.g. physical vs. human geography), or within disciplines across genres. For instance, Lores (2004) analysed research articles within Applied Linguistics and showed two distinct patterns: those with IMRD (Introduction-Methods-Results-Discussion) structure selected more Real World Subjects, and those with CARS (Create A Research Space) structure used more Subjects from the Participant Domain. In the IMRD texts the writer “tends to hide behind real world entities and processes, in the CARS structure, the writer chooses to present himself (*sic*) as a visible participant in the research community.” (2004: 299) Sentence Subjects may also vary across instances of the same assignment written by students from different backgrounds: North (2005) shows clear differences in the use of Theme between Arts and Science students in a Philosophy of Science class. Similar

findings emerge from a study of English, History and Science stream secondary students in Vietnam whose English compositions show clear disciplinary influences in Theme (Duong 2005). It will be important, therefore, not to generalise from limited data to disciplines or disciplinary groupings, but rather to develop a framework that allows such differences to be mapped for specific data sets. This will enable us to explore the extent to which student writing reflects the established differences in abstraction, technicality and visibility of participants across disciplines.

#### **4 Disciplinary Progression**

There is evidence of a drift towards grammatical metaphor not only as children progress through secondary school English (Christie 2002), but also through “the stages of a science apprenticeship, from junior secondary to post-graduate levels.” (Rose 1998: 263) As Hartnett explains, “because nominalisation requires knowledge of the field, it distinguishes the expert from the uninitiated” and greater use of grammatical metaphor positions the writer more as an insider, or member of the specialist group. (2001: 106) Similarly, Samraj (2004), in her analysis of graduate research papers, finds that, while two science disciplines vary significantly in percent of epistemic Sentence Subjects, the more successful papers have a greater frequency of Sentence Subjects concerning knowledge construction, researchers and previous studies. Hewings (2004) in her comparison of Year 1 and Year 3 geography essays suggests that 1<sup>st</sup> year undergraduate students frequently tend to use unmarked topical Themes identifying people, places, things or abstract qualities, and thus much of their writing is descriptive (2004: 140), whereas 3<sup>rd</sup> year students adopt a more critical stance and make more references to the literature. (2004: 142) It will be important, therefore, to develop a framework that can reveal across student writing any development in grammatical metaphor, or epistemic Subjects.

#### **5 Studies of Sentence Subjects**

Two earlier classifications of Sentence Subjects and descriptions of professional academic writing are fundamentally similar: MacDonald’s distinction between Phenomenal and Epistemic classes is echoed in Gosden’s Real-World vs. Hypothesised

and Objectivised Domains. Each of these is subdivided. Thus 'Shakespeare' is MacDonald's example of a Particular of the phenomenal classes, and 'the evidence' exemplifies Reason in the epistemological classes. For Gosden, 'Shakespeare' might be a real world entity, and 'the evidence' a hypothesized-objectivized viewpoint.

The classifications differ in that Gosden has an additional two Domains which refer to Participants ('we', 'South 1987') and the Discourse ('this essay', 'previous studies'). So a Subject such as *our data* is classified as Participant Viewpoint for Gosden, and Reasons for MacDonald. This reflects MacDonald's aim of comparing how reality is represented across disciplines as opposed to Gosden's aim of showing variation in writer visibility within disciplines. Thus MacDonald compared across narrowly specialised English, History and Psychology articles, while Gosden compared across stages of IMRD Science articles. As a result, the classifications, and resulting descriptions, which reflect these differences in aim, discipline and scope, cannot simply be conflated. Nevertheless, the descriptions of published research across disciplines are useful for comparisons with student writing.

## **6 Sentence Subjects in BAWE student writing**

Given the potential for Sentence Subject analysis, MacDonald's and Gosden's frameworks were tested on our student data, not only to decide whether they could be modified for our purposes, but also to explore how their descriptions of professional writing related to student writing.

### ***A Does student writing in English, History and Psychology exhibit features similar to those described by MacDonald for professional writers?***

Fifty BAWE pilot corpus assignments from English, History, and Psychology were selected: five similar (e.g., essays from a core module) assignments with the highest marks, for each of Years 1, 2 and 3. In addition to five from the Year 1 'Introduction to Psychology' module, five from the Year 1 'Psychology Practical' were chosen, on the (unwarranted) assumption that these might show different Subjects. Following MacDonald (1992: 564-566), initial quotes and 'it' in cleft and pseudo-cleft constructions

were disregarded, and existential ‘there’ was replaced by the existent, as we are more interested in Field than given-new or thematic structure.

MacDonald found that 75-85% of the Subjects in the English and History articles were from the Phenomenal Classes (Particulars, Groups and Attributes). These findings were echoed in the student essays where we find *Prince Arthur* and *Edmund Spenser* in English, or *The Cold War*, and *Mohandas Gandhi* in History. In MacDonald’s analysis, English favoured Particulars and Attributes, whereas History favoured Groups. English essays favoured Particulars and Attributes over Groups, but the preference for Groups was not found in History essays. This difference is probably more attributable to subdivisions within History (MacDonald’s articles were all on New England colonial migration and inheritance) than differences between professional and student writing.

In contrast, over 60% of the Subjects in MacDonald’s Psychology articles were from the Epistemic Classes. This was also the case in the student writing, as *The pursuit of an acceptable definition of schizophrenia*, or *Approaches to the study of eminence* suggest.

So there was support from student writing for MacDonald’s two major categories and their ability to distinguish “between the phenomena that the researcher writes about (does research on, investigates etc.) and the concepts, categories, abstractions, or methodological tools the researcher uses to reason about the Subject” (1994: 157). English and History students are also engaged in ‘epistemic’ work, but this is not explicit in their writing. They could begin with “The theory I wish to propose is that Prince Arthur...” or “A clear case for the Cold War ...”, but they do not. Thus Sentence Subjects reveal not only what entities are discussed (*war vs. schizophrenia*) but also an Angle on Field, or a view of the epistemological level at which meanings are explicitly construed.

It may not seem very surprising that student writers echo professional writers in their choices of Sentence Subjects, but when we look at the extent to which first year students are using epistemic Subjects in some disciplines, this finding gains in significance. MacDonald interprets a study by Witte and Cherry (1986) of American writers in Grades 4, 8, 12 and 15 as suggesting that “epistemic Subjects are not part of the ordinary repertoire of writers well into the undergraduate years.” (1994: 151) Hewings’ comments about the prevalence of persons, places, things and abstract qualities in 1<sup>st</sup> year geography

essays might support similar conclusions for British students, but closer examination suggests that in disciplines such as Psychology and Philosophy epistemic Subjects are the norm, even at 1<sup>st</sup> year undergraduate level. Supporting evidence also emerges from a Key Word analysis (WordSmith Tools) of the Year 1 psychology assignments where *theory*, *concept* and *findings* emerge as key words. Of course these disciplinary differences do not mean that the texts in one discipline are more ‘advanced’ than those in another; rather that some are conventionally more epistemologically explicit. The explicitness in some disciplines may reflect competing theories and lack of agreement on ‘real-world’ entities. In terms of Angle on Field, our small study of student writing suggests that in psychology Sentence Subjects refer to Psychology – its definitions, studies, major works and psychologists, whereas in English or History, more Sentence Subjects refer to Literary Characters, Literary works or Historical events and institutions.

***B Does student writing in the sciences exhibit features similar to those described by Gosden for professional writers?***

Gosden’s classification scheme differs from MacDonald’s in that it groups ‘audience’ and ‘research’ in a Participant Domain, and adds a Discourse Domain. The separation of a Participant Domain relates to Gosden’s objective of showing how writer visibility shifts throughout the stages of research articles. His continuum of Subject Role Domains ranges from more interactional to more topic-based; or from the Participant Domain (‘we’, ‘Smith 1987’) through the Discourse Domain (‘previous studies’, ‘Table 1’), and the Hypothesized and Objectivized Domain (‘the probable cause’) to the Real-World Domain (‘preparation’, ‘oxygen’).

Towards one end, it is typified by the increasingly overt presence of the writer as a visible participant in the research/reporting process; towards the other, there is a greater focus on research-based, i.e. real-world physical and mental entities and activities. (Gosden 1993: 62)

The inclusion of a Discourse Domain is partly motivated by the number of grammatical Subjects in science that refer to tables and figures, rising to 5% in the Results section. The predominant Domain for Subjects in sciences is however the Real World, with 77% of the total, 56% of which are Real World Entities.

A similar finding emerged from the analysis of BAWE student assignments from Biology (the only Science available at the time). Real World Subjects were most frequent and, within this, real world entities such as *e-coli*, *viruses* and *bacteria*. Subjects from the Discourse Domain were also evident (*This analysis, This report, Figure 1*) and are important in characterising Angle on Field in the sciences as opposed to English, for example, where more typical Discourse Domain Subjects were *This essay, We* and *I*.

## 7 Issues in analysis

While the analysis<sup>3</sup> of student assignments broadly supports the findings for professional writing, attempts to apply the frameworks more widely proved problematic. For instance, when does a ‘real world’ author become an interactive participant? Gosden defines interactive participant as “researchers referred to by name in citations” (1993: 65), which allows their views to be challenged. This works well in sciences, but for English it is not always clear whether critics and authors (*Anais Nin*) are represented as interactive participants or objects of study. Or *Plath’s analysis of madness* means in ‘The Bell Jar’ novel, but, being represented as her analysis, is it an epistemic class or is Plath the ‘researcher’ whose views we are challenging? Here Lewin, Fine and Young’s distinction (2001: 112) between Writer, Researcher, Thinker and Practitioner might be useful, where writers and practitioners produce texts ‘in the real world’. Similarly, if we are engaging with *Kant’s Critique of Pure Reason*, does this make Kant an interactive participant? Here, Kant could be interpreted as a Thinker, in which case again we are seeing disciplinary differences in terms of how engagement with the research community is construed.

The decisions should ultimately reside in reactances in the grammar, although it is acknowledged that multiple readings may be possible. Research on business texts, for instance, has shown how certain linguistic choices can be construed and interpreted differently by members of the business discourse community and English language specialists (Forey 2004). Equally, more technical language was at times impenetrable, giving rise to questionable analysis. More confident analysis requires greater familiarity with the discipline as well as its means of expression.

## **8 Assignment Initial Sentence Subjects**

In working through the analyses of all Sentence Subjects in the student assignments, it became clear that such analysis of the three thousand texts in the corpus was beyond the scope of the project at present. It also became clear that the first sentence of each text often provided an excellent indicator of Angle on Field.

Theoretical justification for focusing on initial sentences comes from work on macro and hyperThemes (Martin and Rose 2003: 181-186). HyperThemes are similar to topic sentences that predict the development of the next phase of the discourse, which may be several paragraphs long. MacroThemes predict hyperThemes. Moreover,

[in] many registers, hyperThemes tend to involve evaluation, so that the following text justifies the appraisal, at the same time as it gives us more detail about the Field of the hyperTheme (its 'topic'). (2003: 181)

This evaluation and detail is exactly the kind of Angle on the Field of the following text we want. A practical solution was therefore to plot Assignment Initial Sentence Subjects (AISS) only. This necessitates neither a prior analysis of hyperThemes and macroThemes, nor a full analysis of all Sentence Subjects, and yet should provide a characterisation of Angle on Field, or what students write about.

## **9 Angle on Field through AISS: a framework**

Earlier studies of disciplinary variation, disciplinary progression and initial analyses of student writing following MacDonald and Gosden led to a framework for characterising Angle on Field across disciplines and years through the lense of AISS. In Table 9.1, the horizontal axis represents degrees of abstraction from 'Phenomena' through 'Perspectives on Phenomena' to 'Scholarly Phenomena', and 'Perspectives on Scholarly Phenomenon'. Phenomena are construed as real world entities, whereas perspectives on phenomena state the Angle of consideration, usually through appraisal resources. Phenomena may 'be' concrete physical objects or abstractions or theoretical constructs. It is how they are construed in writing that characterises them as Phenomena. They are objects of study that do not belong primarily to the world of academia. Scholarly phenomena are essentially metaphenomena, one step removed from the real world phenomena into the world of scholarship – hence the labeling of this Domain as the 'academic' Domain.

The vertical axis captures the range from everyday to technical language. We have everyday language Subjects (*ordinary people*), technical terms derived from everyday language (*post traumatic stress disorder*), and less penetrable scientific technical language (*Escherichia coli O157:H7*).

**Table 9.1 ANGLES on Field: academic Domain** (includes fabricated examples)

		<-----Abstraction in the academic Domain ----->			
		Phenomena	Perspectives on Phenomena	Scholarly Phenomena	Perspectives on Scholarly Phenomena
<b>T E C H N I C A L I T Y</b>	<b>Everyday language</b>	The Great Wall of China	The importance of the Great Wall of China	Research into the Great Wall of China	The history of research into the GWC
		Post traumatic stress disorder			
		Schizophrenia	Possible schizophrenia	Grey's theory of schizophrenia	Approaches to the study of schizophrenia
	<b>Technical language</b>	Escherichia coli O157:H7			

The analysis in Table 9.2 is based on the AISS of the 65 student assignments<sup>4</sup> originally selected for this study. In order to focus on differences in Field across student writing, the analysis ignores initial quotes (3 cases); substitutes for 'it' (0 cases), and existential 'there' (2 cases); and replaces Subjects from the Discourse Domain such as *we*, *this essay* or *Figure 1* (4 cases). It further characterizes the vertical dimension as types of entities, groups, and individuals which reflect this data.

**Table 9.2 Mapping AISS across Five Disciplines**

	Phenomena	Perspectives on Phenomena	Scholarly Phenomena	Perspectives on Scholarly Phenomena
<b>Groups of Conscious Individuals</b>	<i>Ordinary people</i> EN1 <i>The British</i> HI3		<i>Psychologists</i> PS1	
<b>Political Entities</b>	<i>The Bolshevik Party</i> HI1 <i>The Dutch Republic</i> HI2			
<b>Conscious Individuals</b>	<i>Prince Arthur</i> EN1 <i>Arthur</i> EN1		<i>Barbara Lupini</i> EN2 <i>Anais Nin</i> EN3	

	Edmund Spenser EN1 Tennyson EN2 William Blake EN2 Edward Grey HI2 Mohandas Gandhi HI3		Max Weber HI3 John Robert Seeley HI3	
<b>Semiotic Entities</b>	<i>The Canterbury Tales</i> EN1 <i>Blake's Songs...</i> EN2 <i>Maud</i> EN2 <i>This papal bull</i> HI2	<i>The prevalence of eye-witness testimony</i> PS1 <i>A large part of the aim of Kant's...</i> PH2 <i>A central Fregan introduction into the philosophy of thought and language</i> PH3 <i>The epithet of "Order and Progress"</i> HI1	<i>The Right Shift theory of Annett (e.g. 1999)</i> PS2 <i>The work of Jean Piaget (1896-1980)</i> PS1 <i>Russell's Theory of Descriptions.</i> PH3 <i>The liar paradox</i> PH3	<i>The history of psychological research</i> PS1 <i>Recent literature reviews and meta-analyses</i> PS1
<b>Physical &amp; Material Entities</b>	? <i>The development of the vertebrate limb</i> BS3		? <i>The Necker cube</i> PS2 <i>Numerous factors</i> PS3	
<b>Cognitive Entities</b>	<i>Memory</i> PS1 <i>Plath's analysis of madness</i> EN3 <i>The author's chosen reading</i> EN3	<i>The priority</i> HI1	<i>Research into ...</i> PS1 <i>The construction of an expectancy-based model of melodic complexity</i> PS3 <i>Examination of the subcellular distribution of molecules...</i> BS2	<i>The accepted view amongst historians...</i> HI2 <i>The pursuit of an acceptable definition of schizophrenia</i> PS1 <i>Approaches to the study of eminence</i> PS3 <i>Its status as a special case of logical consequence...</i> PH3
<b>Entities with duration</b>	<i>The Cold War</i> HI1 <i>The... Revolution</i> HI1 <i>The SA war</i> HI3	<i>The soit-disant "Age of Absolutism"</i> HI2		
<b>Abstract Entities</b>	<i>Time</i> PH1 <i>Qualia</i> PH1 <i>Music</i> PS1 <i>self-consciousness</i> PS3		? <i>Psychology</i> PS1	
<b>Psychological Qualities</b>	<i>Hand preference</i> PS2 <i>Stimulus-response compatibility</i> PS2 <i>?Post Traumatic Stress Disorder</i> PS3			
<b>Micro-Biological Entities</b>	<i>Escherichia coli O157:H7</i> BS2 <i>The C... e... organism</i> BS3 <i>H. Adenovirus and Herpes. Virus.</i> BS3	<i>A requirement for packing of genomic DNA</i> BS2		
<b>Groups of Micro-biological Entities</b>	<i>The o. m. s. group of cyanobacteria</i> BS2 <i>Viruses</i> BS2			

Key HI=History; PS=Psychology; BS=Biological Science; PH=Philosophy;  
EN1=1st year English; EN2=2<sup>nd</sup> year English etc. ?=uncertain classification

As with other classifications, further delicacy is possible, and is desirable particularly in those classifications which currently run the risk of being circular (e.g. 'psychological

qualities'). To explore what an AISS analysis might reveal about Angle on Field in other disciplines, we turn to research on the social sciences.

**C** *Does student writing in Social Sciences exhibit features similar to those described by Lewin, Fine and Young (2001)?*

Lewin, Fine and Young (2001) outline a genre-based approach to the analysis of social science journal articles, which are reports of “empirical, quantitative research... [divided] into sections detailing the background of the study, the methods, the results, and the interpretation of the results.” (2001: 24) Although not focusing on Sentence Subjects, in an examination of moves and lexical chains in the Introduction sections of these articles, there are useful distinctions among participants, which often, from our analysis of their examples, correspond to Sentence Subjects. Within an SFL analysis into participants and processes, a distinction is made among Producers of Research ('Darwin', 'investigators'), Products of Research ('literature'), and Phenomena under study ('cocaine abusers', 'higher mortality rate') (2001: 32). The Lewin *et al.* findings suggest that

the participant common to all the texts (from the social sciences) is the group of humans being studied... The subjects of a study are referred to variously (1) by their membership in the class 'human beings' ('individuals'... 'persons'... 'children'...); (2) by their membership in the class 'subjects of inquiry' ('respondents', 'subjects'...); or (3) by their membership in the class 'people who embody the variables of the study' ('smokers'...). (2001: 134)

Similarly *People* and *the rail passenger* occur in Psychology, both from second year students. These are not the typical Subjects, however, as Lewin *et al.* point out: “Rather than an animate entity, the most frequently realized participant in the Introductions is ‘past research’.” (2001: 135) ‘Past research’ features heavily in the psychology student texts too (see Table 9.2). To this extent, both professional social science writers and student writers in Psychology approach their writing explicitly from the Angle of past research.

To test the AISS Angle map on further social sciences, we analysed assignments from Business (IB) and Economics (EC) (see Table 9.3).

**Table 9.3** **Mapping Business and Economics**

ANGLE ON:	Phenomena	Perspectives on Phenomena	Scholarship	Perspectives on Scholarship
Conscious Individuals	<i>Sam</i> IB1			
Groups of Conscious Individuals		<i>The traditional accountants</i> IB2		
Semiotic Entities	<i>An analysis table</i> IB1	<i>An important problem faced by financial economists</i> IB4 <i>the key issues involved with corporate governance in the UK</i> EC2	<i>The Law of One Price</i> IB4 <i>An event study</i> IB4 <i>Agency theory</i> IB4	<i>the main features of the second-generation currency attack model</i> EC3 <i>?the different methods of regulation available to the government</i> EC1
Political/Economic/Social Entities	<i>A transnational company</i> EC1 <i>The yield curve</i> EC2 <i>CRT Technologies</i> IB1 <i>House prices</i> EC2 <i>South Korea's economy over the past half century</i> EC3 <i>World mergers and acquisitions</i> IB 2 <i>monthly returns for both an index of hedge funds and for the MSCI</i> EC3		<i>economic growth</i> EC1 <i>Collusion</i> EC2 <i>laissez-faire</i> EC1 <i>Weak form efficiency</i> IB4	

Business and Economics do not follow Lewin *et al.*'s finding about prior research in that no previous studies occur as AISS. This may be explained in that all their texts were of the IMRD pattern, which was also common in psychology assignments.

Secondly, Phenomena are largely either cases (*Sam, CRT technologies*) or economic abstractions (*the yield curve, mergers and acquisitions*) which are construed as real entities. This echoes Byrd's analysis of nouns phrases in Accounting textbooks, which are "characterised by the use of specialised terminology, constant reference to money and figures, and the use of case studies (with made up names and dates) and problem sets." (2005: 19) Again, this is in contrast to Lewin *et al.*

Thirdly, Scholarship focuses on definitions of terms. In contrast with *TNC, yield curve* and *house prices* which are construed as 'real', as existing or happening in the real world, *collusion* is construed as something to be defined. This analysis is based on reactances in the grammar. We do not have 'Collusion happens when...' but rather 'Collusion refers to where ...'

Thus our framework has allowed us to distinguish writing in Psychology, which resembles Lewin *et al.*'s Social Sciences, from Business and Economics, which resemble

Byrd's Accountancy. This is exactly the type of mapping of Field across disciplines anticipated.

In conclusion, we present some tentative findings comparing the writing of university students across disciplinary groups and years of study.

## **10 Comparisons across Disciplines**

The mapping shows clearly the general, everyday wording of phenomena in those categories shared by English and History in contrast with the technical wording in Biology and other uncharted disciplines. It enables us to group Philosophy and Psychology in their shared use of abstractions and theories, and to group Economics and Business in their shared use of cases and economic entities. It thus affords a snapshot of what students write about across the disciplines.

## **11 Progression across Years**

Similarly, the mapping suggests comparisons across years of study.

### ***11.1 Abstraction in the Humanities***

In English there is progression from Entities construed as Real World Phenomena (individuals and semiotic objects) in EN1 across to Scholars in EN3 (*Lupini, Nin*), and down to cognitive entities (*Plath's analysis...*, *the author's chosen reading*). Supporting evidence of such a progression is found from looking beyond AISS where simple relational clauses feature in EN1; verbal clauses in EN2 and grammatical metaphor (*analysis, study*) in EN3. In History there is progression from Entities construed as Real World Phenomena (individuals, semiotic objects and groups in HI1) to Perspectives of Scholars in HI2 (*the acceptable view amongst historians*) and to Scholars in HI3 (*Weber, Seeley*). Although the data sets here are small, the progression echoes that described in the literature on progression in English and History. Interestingly, a similar progression is suggested in Philosophy, but from 'Material abstractions' (*time, qualia*) in PH1 to scholarly theories construed as entities (*Russell's Theory of Descriptions, the liar paradox*) in PH3.

### ***11.2 Technology in the Sciences***

In Biology, Subjects are technical terms, often lexically dense, requiring expertise in the field to interpret. BS2 appears to be more factual and experimental, where BS3 appears to acknowledge research more, but this does not emerge from analysis of Sentence Subjects. Further examples are needed before claims can be made about progression in the physical and life sciences.

### ***11.3 Abstraction and Technology in the Social Sciences***

While the scattering of Psychology shows that abstraction is not a feature of development in psychology, initial analysis suggests it is a feature in Business from specific cases (*Sam*) in first year to theories (*Agency theory*) in fourth year. Just as the Social Science Subjects are generally less technical than those of the sciences and yet used more technically than those in Humanities, so too does progression in Social Sciences reflect a mixture of progression as identified through abstraction in Humanities and no clear progression as in the sciences so far.

## **12 Conclusion**

This chapter demonstrates that by mapping Assignment Initial Sentence Subjects onto a framework of abstraction and technicality, we can analyse and describe Angle on Field across disciplines and years of study. This reveals disciplinary differences and similarities of the type already documented. Its potential for undocumented and emerging disciplines is therefore promising. Moreover, it has the advantage of being manageable for large corpora, and as such is only one perspective on Field, and only one aspect of our characterisation of assessed writing. For instance we are currently working on describing generic stages across disciplines and years. As work on this project and others continues, it will be possible to provide a more comprehensive map of Angle on Field in British student writing, which can then be used for comparison with other academic writing.<sup>5</sup>

## **Notes**

- 1 The project 'An investigation of genres of assessed writing in British Higher Education' (2004- 2007, ESRC RES-000-23-0800) includes development of the British Academic Written English (BAWE) corpus at the Universities of Warwick, Reading and Oxford Brookes, with Hilary Nesi, Paul Thompson and Paul Wickens.

The pilot project and corpus were funded by the University of Warwick Research and Teaching Development Fund.

- 2 Examples in italics are from the BAWE corpora.
- 3 I am indebted to Alois Heuboeck for collaborating on the analysis of Sentence Subjects, and for discussions of related issues.
- 4 The 65 Initial Sentences are listed in the conference presentation handouts on Angle on Field at [www.warwick.ac.uk/go/BAWE](http://www.warwick.ac.uk/go/BAWE)
- 5 For example, the Michigan Corpus of Upper-Level Student Papers (MICUSP) project is developing a parallel American corpus.

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