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*Disciplinary Values  
in English Academic Metaphors*

I processi di condivisione critica dei risultati all'interno della comunità scientifica sono un fenomeno di particolare interesse non solo per gli attori coinvolti ma anche per chi si occupa di analisi linguistica. In tale contesto è interessante comprendere quali siano gli aspetti della ricerca auspicati o, di converso, stigmatizzati dalle diverse discipline in base al loro impianto teorico ed epistemologico. Il linguaggio della comunicazione scientifica è una valida base di partenza per risalire alle variabili assiologiche di riferimento, come dimostrato dalla recente letteratura sulla formulazione degli atti valutativi (*evaluative acts*) nei testi accademici scritti e parlati. Tuttavia il sistema valoriale che orienta tali atti è veicolato da enunciati che non esprimono necessariamente un giudizio o una valutazione: tra questi le metafore concettuali evocano un dominio sorgente che connota indirettamente il discorso e il cui impatto dipende in gran parte dalla frequenza d'uso, soprattutto se risalenti a un medesimo campo semantico o esperienziale. Servendosi di un corpus di testi accademici inglesi (CADIS) compilato dal CERLIS presso l'Università degli Studi di Bergamo, il seguente articolo analizza la distribuzione e la funzione delle metafore valoriali in varie discipline – la medicina, il diritto, l'economia e la linguistica applicata. Per minimizzare le variabili dovute al genere testuale utilizzato, l'indagine comprende un campione rappresentativo di articoli scientifici, abstract, recensioni ed editoriali pubblicati in riviste internazionali. I risultati evidenziano una serie di convergenze/divergenze tra i quattro settori, pur in presenza di un substrato di valori condivisi.

*1. Introduction*

The dissemination and validation of research findings within the communities of practice that claim ownership of academic knowledge is of special interest not only to those directly involved in the process but also to the applied linguist. In order to appreciate the scholarly significance of ongoing debates and conflicts, it is essential to understand what values are prized or, conversely, stigmatised in scholarship. The growing interest in evaluative language and appraisal

systems in English (Hyland 1997; Hunston / Thompson 2000; Bondi / Mauranen 2003; Martin / White 2005) reflects the importance of value judgments in academic as well as professional discourse. This is in many ways linked to the search for textual evidence of individual and collective values initiated by axiological linguists several decades ago (cf. Lepley 1958).

Despite its common traits, the language of scholarship serves a constellation of disciplinary cultures and genres (cf. Becher / Trowler 2001; Swales 2004) embedded not only in different epistemologies and theoretical constructs but also in the variously explicit linguistic cues contained in their textualisations. A number of studies have shown that the choice and wording of evaluative acts reflect disciplinary variation in spoken as well as written genres (Del Lungo Camiciotti / Tognini Bonelli 2004; Anderson / Bamford 2005). Value is signalled, among other things, by such items as lexicalised metaphors that communicate judgement by evoking a positively/negatively connotated source domain (cf. Cameron / Low 1999; Richardt 2005; Kermaš 2006; Low *et al.* 2006).

Like simile, metonymy and figurative language in general, metaphor is an element of academic rhetoric that reaches well beyond stylistics. It has indeed been claimed that “the quality of any culture is in large part the quality of the metaphorists that it creates and sustains” (Booth 1978: 72). On the one hand, metaphorisation constitutes an invaluable resource for expressing abstract concepts by analogy with everyday experience, to the point that for cognitive linguists human reasoning and action are themselves firmly embedded in metaphor (Pauwels / Simon-Vandenberghe 1993; Forceville 2006). On the other hand, it reflects a world view defined by the “beliefs, attitudes, values and emotions of participants” (Cameron / Deignan 2006: 674), thus facilitating cohesion and coherence within scientific communities (Ahmad 2006).

The aim of this contribution is to explore the intersection of metaphor and axiological variables in a corpus of English texts comprising abstracts, research articles, book reviews and journal editorials. In particular it looks at how high-frequency lexical items employ metaphor to convey the disciplinary values associated with four academic domains (medicine, law, economics and applied linguistics). Though often neglected in the literature, lexicalised metaphors deserve

closer attention because they form an essential part of the rhetorical resources used to mark out a scholar's disciplinary allegiance and identity. Their function(s) and distribution will be illustrated by relevant examples drawn from the corpus in hand.

## 2. *Material and methods*

The distribution of evaluative metaphors as markers of academic identity and allegiance (cf. Vaara *et al.* 2003; Lago / Hewitt 2004; Evangelisti Allori 2005) is investigated here using a corpus of written English academic discourse recently compiled at the University of Bergamo (CADIS 2007). A total of 80 texts were extracted from the native-speaker section of the corpus, which consists of published material from leading journals in applied linguistics (AL), economics (ECO), law (LAW) and medicine (MED). To improve coverage, the sample includes a range of genres, with 5 abstracts (AB), 5 research articles (RA), 5 editorials (ED) and 5 book reviews (BR) for each domain. After removing such peripheral material as tables, addresses and references, the quantitative breakdown of the texts was as follows:

Domain	AL	ECO	LAW	MED
	20 (83,623)	20 (70,124)	20 (199,284)	20 (44,581)
Genre	AB	RA	ED	BR
	20 (4,463)	20 (298,965)	20 (22,731)	20 (71,453)

Table 1. Corpus structure by domain and genre (tokens)

All the texts were electronically uploaded to WordSmith Tools (Scott 2007) in order to generate domain-specific word lists and concordances. The three most frequent linguistic items combining metaphor and evaluation were identified in each domain after checking their cotext to confirm metaphoricity, following a procedure based on Biber *et al.*'s (2004) classification of evaluative academic lexis and on Charteris-Black's (2004) approach to the investigation of conventional metaphor markers (see also Stefanowitsch 2006). As most of these occurred in

more than one domain, a total of four items (all adjectives) were identified: *clear*, *strong*, *broad* and *central*. Their morphological variants and antonyms were then included in the count to cover less frequent lexicalisations within the same lexico-semantic category, after checking their cotext for metaphoricity as outlined above.

For some authors these evaluators would count as dead metaphors because they are not “constructed on the spot by the author or speaker” (Larson 1984: 249), yet many studies have pointed to the fact that even fully lexicalised expressions may retain their figurative meaning, rooted both in enduring conceptual metaphors (Traugott 1985; Hepple 1992; Low 1997; Gibbs 2006) and in the user’s awareness of etymology (Alm-Arvius 2006; Trim 2007). The very standard items identified in the corpus are all the more interesting in academic discourse since they are taken for granted and as such belong to “the unquestioned realm of common sense which produces and reproduces the established order” (Cresswell 1997: 336).

### 3. Results

The presence of the four most frequent evaluative markers was assessed in each section of the corpus, including also other parts of speech within the same lexical field. In order to make them comparable, the results were then normalised per 10,000 words in each domain. The underlying evaluative ‘core metaphors’ (Martin 1990) are respectively: KNOWING IS SEEING for *clear/unclear*, KNOWLEDGE IS POWER for *strong/weak*, KNOWLEDGE IS MEASURABLE for *broad/wide/narrow*, and KNOWLEDGE IS LOCATABLE for *central/peripheral*. While the first two employ personification, as they apply an animate source domain to an inanimate target, the latter two operate by reification and project a concrete source on an abstract target. The various markers considered here often occur in compound metaphoric expressions combining an evaluative adjective and a noun, as in *a clearer picture*, *strong scholarly impact*, *the wide area of issues*, *one of the central goals*. The values signalled by these four groups of markers (i.e. clarity, strength, inclusiveness and centrality) are quantitatively distributed across domains in our sample of academic texts as follows:

	AL	ECO	LAW	MED	Average
Clarity	6.7	4.6	3.1	3.6	4.5
Strength	5.1	3.7	5.3	3.4	4.4
Inclusiveness	3.3	3.6	7.0	4.0	4.5
Centrality	1.8	0.4	4.5	1.6	2.1
TOTAL	16.9	12.3	19.9	12.6	15.5

Table 2. Metaphorical value markers by domain (per 10,000 words)

The figures in Table 2 indicate three immediately noticeable aspects: (i) all of the values vary significantly across the corpus, with at least a twofold difference between the least/most represented value in each domain; (ii) taken together, the different values are signalled more frequently in law (19.9 occurrences) and applied linguistics (16.9) than in the other two domains; (iii) at the same time, the average figure across domains is almost identical for all values with the exception of centrality. Most values peak in law, with the exception of clarity, which reaches its lowest point in this domain. On the other hand, applied linguistics has high marking of clarity and strength but low marking of inclusiveness – see Figure 1:

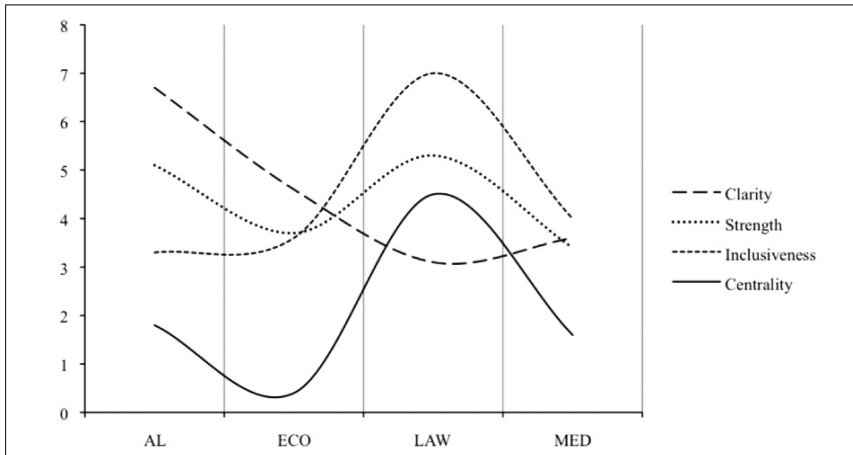


Figure 1. Variation in academic values across domains

Interestingly, if classified and normalised by genre rather than domain (Table 3), the amount of marking was highest for editorials and book reviews, followed by abstracts and research articles – differences clearly reflecting the amount of evaluation deployed in each genre, in keeping with its communicative purpose (see also Giannoni 2005, 2007, 2009).

	ED	BR	AB	RA
Clarity	7.5	6.0	2.2	4.0
Strength	7.5	5.2	4.5	5.0
Inclusiveness	9.7	9.1	6.7	3.6
Centrality	2.6	6.7	6.7	6.7

Table 3. Metaphorical value markers by genre (per 10,000 words)

The same data, plotted in Figure 2, shows that, with the exception of centrality, these variables are most likely to be foregrounded in editorials. It is also interesting to note that clarity is least prominent in the shortest of these genres, i.e. article abstracts.

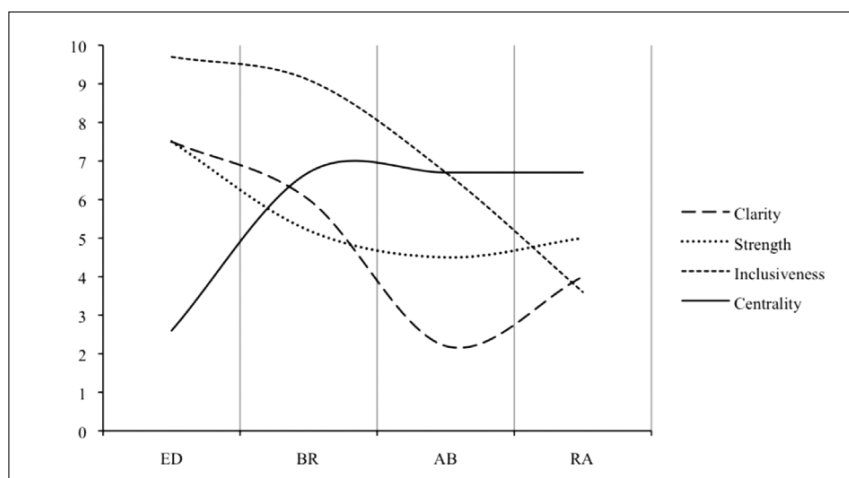


Figure 2. Variation in academic values across genres

In order to appreciate the use of such markers across disciplinary cultures, one needs to look more closely at the metaphors embedded in them. The following subsections describe the range of lexical items deployed for this purpose and their different realisations in the four domains considered.

### 3.1. Clarity

Lexis signalling clarity draws on the well-known conceptual metaphor KNOWING IS SEEING, since “most of what we know comes through vision, and in the overwhelming majority of cases, if we see something, then we know it is true” (Lakoff 1993: 240). When applied to the communicative aspect of knowledge, clarity also engages the ‘conduit metaphor’ whereby human communication is represented as a “physical transfer of thoughts and feelings” (Reddy 1979: 167). The lexical items in this group, all variants of the same root, are distributed as follows: 48% *clear/-er/-est*, 31% *clearly*, 7% *clarity*, 6% *clarify*, 6% *unclear*, 2% *clarification*; though similar in meaning, the types *obvious/obviously* were not considered because they do not operate metaphorically.

The range of realisations covered by such markers is illustrated in the following examples (my emphasis):

- (1) Our results indicate that extensive training, proper instrumentation, *clear* postoperative instructions, and continuing quality assurance and control are helpful to assure optimum outcomes. MED
- (2) By 1971 the job was *clearly* getting too big for one person: John Flemming joined as an Associate General Editor. ECO
- (3) In my view, however, the attempt to treat the right to sue for wrongs as a species of property creates more confusion than *clarity*. LAW
- (4) This point was *clarified* by Meade in correspondence (Harrod, 2003, pp. 482-99). ECO
- (5) The Al Qaeda organization itself has since claimed responsibility for the London bombings, although it remains *unclear* whether Al Qaeda, or an independent group inspired by it, carried out the attacks. LAW

- (6) Iedema (2003), as a *clarification* to the concept of multimodality proffered by Kress, calls this kind of alteration in multimodal meaning “resemiotization”. AL

Alongside inclusiveness, clarity is on average the most frequently signalled metaphorical value in the corpus. It peaks in applied linguistics (6.7 occurrences per 10,000 words), where it reaches the second-highest frequency for any value in a single domain. Applied linguists are therefore the most likely to signal their appreciation of clarity – whether as a quality of perception or description – in disciplinary knowledge. As in (2) above, descriptive clarity was often associated with *clear* and *clearly* used as epistemic stance markers (Biber 2006).

### 3.2. Strength

This value is conveyed through the familiar metaphor KNOWLEDGE IS POWER, which also appears to be a common evaluative resource in academic lectures (cf. Crawford Camiciottoli 2004). Compared to other values, strength is distributed more evenly across domains. It has the highest level of occurrences in law (5.3), where it is often signalled as a quality of legal cases or actors in the political area: e.g. *the strength of “due process”*; *France’s strong interest in suppressing international terrorism*. Applied linguistics comes second, with strength attached especially to experimental data and the scholarly impact of research: e.g. *with L2 proficiency as the stronger predictor*; *the book’s strengths*. The lexical items in this class comprise of 52% *strong/-er/-est*, 12% *strongly*, 11% *strength*, 11% *weak/-er*, 5% *strengthen*, 3% *weakness*, 3% *weaken*, 2% *strengthening* (n.), less than 1% *weakly*. The following examples illustrate the use of each item.

- (7) Harrington speculates that social stigma and/or markedness may play a major role, and that adults are likely to resist innovations that carry *strong* social stigma. AL
- (8) Because health spending is *strongly* trending, the trend instrument is strong and the resulting estimator has small standard errors. ECO



- (9) Controversy continues to swirl around the *strength* of the evidence regarding the severity and imminence of the threat presented by Iraq. LAW
- (10) In addition, submissions from countries where English is not a native language may demonstrate *weaker* English writing skills than submissions from English-language countries. AL
- (11) It will increase (decrease) profits of the domestic industry if demand is concave (convex) and this will *strengthen* (*weaken*) the argument for a tariff. ECO
- (12) *Weaknesses* of this study. ECO [subheading]
- (13) Recent developments suggest that all five Permanent Members are in fact doing just this, and that all increasingly favor a *strengthening* of the collective security machinery to counter new international security threats. LAW
- (14) Whereas a significant effect would demonstrate a positive correlation between accuracy and frequency [...], the measures are either close to no correlation at all (monomorphemic type and token) or are actually *weakly* negatively correlated. AL

Like clarity, strength is overwhelmingly presented as a positive quality. Negative lexicalisations are quite common here (17% items), though hedged only in a couple of instances: i.e. *on rather weak ground; a relatively weaker signal*.

### 3.3. Inclusiveness

Inclusiveness, based on the KNOWLEDGE IS MEASURABLE metaphor, signals the extent to which experimental data and theoretical approaches are either *broad*, *wide* or *narrow*. This value is, alongside clarity, the most frequent in our corpus and peaks in law, where its presence is roughly twice that observed in the other domains, being employed mainly to measure the reach of legal claims, rights and authorities: e.g. *the breadth of the FDA's jurisdictional claim; Tort law's relatively narrow scope of operation*. The metaphorical lexicalisations through which inclusiveness is communicated are distributed as follows: 42% *broad/-er*, 19% *wide/-er*, 15% *widely*, 7% *narrow/-er*, 7% *broadly*, 4%

*breadth*, 3% *broaden*, 2% *narrow* (v.), 2% *narrowly*, <1% *widen*. The range of such markers is shown by the realisations below.

- (15) Given the *broad* theoretical recognition of input's fundamental role in L2 acquisition [refs], Van Patten and his colleagues developed PI as a means of addressing common L2 grammatical errors. AL
- (16) The summary points out the discoveries that the FDA made and highlights the ways in which Kessler designed the FDA's effort to regulate youth smoking as a sympathetic hook upon which to capture *wide* jurisdictional authority. LAW
- (17) Standard preferences – of the kind used *widely* in economics to study consumption, asset pricing, and labor supply – imply that health spending is a superior good with an income elasticity well above one. ECO
- (18) Justice Kennedy agreed with Justice Stevens's dissent that the plurality's definition of "waters" was unduly *narrow*. LAW
- (19) What is primarily required is to look both within and without the domain of language and *broadly* conceptualize how meaning is made in and across these new forms of electronically mediated, highly visual communicative practice. AL
- (20) The second edition has been updated, and includes accounts of a number of recently developed scales, while retaining the *breadth*, concision and clarity that marked the first edition. MED
- (21) The benefits that could come from the Roadmap's *broad* concerted effort to develop a malaria vaccine are many. MED
- (22) Typical reforms burden plaintiffs by raising new procedural and evidentiary hurdles, *narrowing* grounds for liability, and limiting damages. LAW
- (23) Judicial review would have focused *narrowly* on the question of whether the Agency had acted reasonably. LAW
- (24) But as due process rights have found a place in human rights texts, their ambit has *widened* steadily. LAW

The results indicate therefore a clear preference for *broad* over *wide* as a metaphorical evaluator, while the adverbial *widely* (16) is used almost exclusively to invoke consensus as a source of authority: e.g. *widely held assumption*; *widely recognized rights*; *used widely in economics*. The morphological variants of *narrow*, which account for only 9% of items, are seldom hedged.

### 3.4. Centrality

This is the least represented of the metaphorically embedded values identified above, as its average frequency is less than half that of the other three categories, i.e. 2.1 occurrences per 10,000 words. It is quite frequent in law, however, although virtually absent in economics and seldom used in applied linguistics and medicine. Variants of *central* and *marginal* are generally used to qualify such abstract concepts as *topic*, *concern*, *issue*, *claim*, *role*. Their relative distribution, inclusive of both US and British spellings, is respectively 55% *central*, 16% *centre*, 10% *centre* (v.), 8% *centred*, 5% *centrality*, 4% *marginalise*, 3% *margin/marginally*, 3% *centeredness/centrism*, 2% *centrally/centralisation*, 2% *centralised/-ing*, 1% *marginal*. This count does not include the use of *marginal* in the economics texts, where it occurred only as a fully lexicalised statistical concept (e.g. *marginal costs / curve / benefits / product / utility*). The following examples illustrate the use of such items across the corpus:

- (25) The women, then, cover those issues that are *central* to women's roles as caretakers and guardians of the private sphere. AL
- (26) At the *center* of this exquisite scheme stood a complex institution: the King-in-Parliament. LAW
- (27) There are interesting and important issues for the philosophy of language, human agency and science in quality of life measurement, *centring* on the further clarification of such concepts as 'health' and 'quality of life'. MED
- (28) This framework has facilitated the development of an alternative and more administration-*centred* definition of administrative law as 'all the law and rules applicable to the administration'. LAW

- (29) He is sceptical that an exemplar approach, with its predictions relating to the *centrality* of frequency, can account for the overwhelming number of sound changes in which frequency appears to play no role. AL
- (30) The FDA's first tangle with tobacco, in response to a 1977 citizens' petition that urged the FDA to regulate cigarettes as drugs, *marginalized* the consumer use approach. LAW
- (31) With the focus of this part of her analysis on the expression of disagreement, Locher readily admits that power and politeness – her theoretical foci – are considered only “*marginally*”. AL
- (32) In re-evaluating the sacred concept of judicial independence, proposing an empirical critique of both formal judicial *centrism* and the “romantic illusion” of informal justice, [...] this volume makes a valuable contribution to law and development discourse. LAW
- (33) It is precisely because access to a law of redress figures *centrally* among the norms and practices by which Englishmen are constituted as rights-bearers that the English Constitution guarantees them institutions that will provide that body of law. LAW
- (34) By an irony of inversion, Madison's *centralizing* solution to the problem of faction has produced Madison's nightmare: a faction-ridden maze of fragmented and often irresponsible micro-politics within the government. LAW
- (35) They manoeuvre in situations of ‘democratic deficit’, where civil society is non-existent or *marginal*; it is indeed from this very deficiency that they derive such claim as they have to representative legitimacy. LAW

Albeit less prominent than the other three, centrality is a value with interesting deictic implications (cf. 25-29). The discipline is equated to a surface whose ‘centre’ is endowed with relevance and authority; by contrast, knowledge at the margins is perceived as irrelevant and non-authoritative (cf. 30-31). When the same metaphor is applied to organisational structures, however, the pattern may be reversed as the centre takes on a range of undesirable connotations (32, 34). The negative lexicalisations, only 8% of the total, were all unhedged.

#### 4. Discussion and conclusions

The results of this investigation show a common axiological base shared by different disciplines, as signalled by metaphoric expressions embedded in the lexis of their written discourse. The pervasiveness of such items confirms Lakoff / Johnson's argument that conceptual metaphors "structure how we perceive, how we think, and what we do" (1980: 4) also in academia. This is further confirmed by the high proportion of scientific terminology whose status is inherently metaphorical (cf. Salager-Meyer 1990).

Though Fahnestock (1999) discounts metaphor as somewhat overrated among the figures of speech employed by scientists, it undeniably "uses language to activate unconscious emotional associations and it influences the value that we place on ideas and beliefs on a scale of goodness and badness" (Charteris-Black 2005: 14). Even such evaluators as *broad*, *strong* and *clear* retain metaphorical connotations which, albeit unnoticed, influence the reader's understanding of facts, observations and ideas within a community of practice. The considerable amount of evaluation they perform in academic writing further challenges the validity of a clear-cut distinction between live and dead metaphors (cf. Lakoff 1987).

Against this background, some of the domains analysed here appear more prone to signal certain academic values rather than others. In so doing they reflect the presence of underlying disciplinary cultures based on shared "codes of conduct, sets of values and distinctive intellectual tasks" (Becher 1981: 109). While clarity, strength and inclusiveness are on average equally represented in our textual sample, their distribution is not always equal across domains: applied linguists are the most likely to foreground clarity (along the *clear* → *unclear* continuum) as a quality of research, whereas legal scholars place the greatest emphasis on inclusiveness (*broad/wide* → *narrow*). The other disciplines signal value less frequently: economists are the least likely to express centrality (*central* → *marginal*) and medical researchers signal strength (*strong* → *weak*) less often than any other domain in the corpus.

Accounting for such variation is by no means straightforward. Disciplinary communities can be described by so many variables (cf. Hyland 2000; Becher / Trowler 2001) that any simplification inevitably

overlooks some of the epistemological, sociocultural and discursual factors at play. As argued by Crawford Camiciottoli (2004) there is a clear link between metaphor and content, which makes it more likely to deploy certain lexical items when addressing a given topic. The fact that inclusiveness is signalled primarily in the law can be understood as evidence of the focus on legal interpretation that underlies most case-based research in this domain. On the other hand, the emphasis on clarity in applied linguistics may reflect the discipline's ongoing struggle to extract linguistic knowledge from textual data. In other words, academics in each of the two domains would seem to stress those qualities of science which are most problematic and difficult to attain. The fact that economists and medical researchers take a lower profile here may partly be due to their greater reliance on experimental and/or statistical data, which require less qualification as they 'speak for themselves'. In medicine a further reason for restricting metaphors of the kind described here is the need to avoid any confusion between the real-world qualities signalled by such items as *clear*, *strong*, *wide*, *central* and their metaphoric equivalent.

At the same time, researchers construct a credible, authoritative authorial voice by signalling the value (or non-value) of their findings and of other knowledge claims in the field. Evaluation and stance-marking define not only the disciplinary dimension of academic identity but also its individual aspects (Ivanič 1998), which are another promising area for linguistic investigation (cf. Hyland 2008). In international academic communication, the impact of evaluative metaphors is also linked to the development of metaphoric competence among non-native speakers of English (Gardner / Winner 1978; Littlemore / Low 2006).

The importance of these evaluative items is arguably greater than that of the more evident or 'salient' metaphors used by researchers to introduce new concepts or theories (Bazerman 1988; Raad 1989; Journet 2005). Far from being a minor aspect of metaphor, the expression of attitude is one of its most basic functions, especially when introducing or discussing new knowledge claims (Goatly 1997; Hyland 2005). It is pervasive enough to have become embedded in the academic idioms of spoken as well as written genres (cf. Simpson / Mendis 2003). Even the most familiar lexicalisations of metaphoric evaluation, however, retain part of the underspecification present in

their source domain (as well as their target) in scientific argumentation, which by its very nature eludes unequivocal specification. As observed by Gross, “in discovery, metaphor is prominent; in verification, it remains so: scientists have no better resource for expressing what they do not see, the universal mechanism whose audible and visible traces they purport to track” (1996: 84).

Given the exploratory nature of this study, it is hoped that its insights will be followed up. The most obvious direction for further research would be a broader analysis based on the whole of CADIS or other corpora. It would also be interesting to compare the realisations employed by different subgroups of researchers, such as native vs. non-native speakers, junior vs. senior academics and those based in more or less prestigious universities. Insofar as academic values are signalled in discourse rather than tacitly understood by participants, any textual evidence of their presence is of interest when describing peer-to-peer communication in English-medium publications.

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