

Flights of fancy: a functional linguistic interpretation of semantic gravity and semantic density in secondary school history teaching.

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Martin (to appear) discusses four phases of dialogue between Bernstein's sociology of education and systemic functional linguistics - coding orientation, pedagogic discourse, knowledge structure and most recently identity. This paper develops a theme from the third phase, knowledge structure - drawing on discussions collected in Christie & Martin 2007. In particular it focuses on one dimension of Maton's Legitimation Code Theory, semantic gravity and semantic density, in relation to SFL work on technicality and abstraction (especially in relation to grammatical metaphor).

This dialogue is a development of Bernstein's late work on horizontal and vertical discourse (Bernstein 1996/2000), and within vertical discourse, his distinction between horizontal and hierarchical knowledge structures. Muller (2007) proposes 'verticality' to describe how theories progress - via ever more integrative or general propositions (cf Bernstein's strong/weak internal grammar) or via the introduction of a new language which constructs a 'fresh perspective, a new set of questions, a new set of connections, and an apparently new problematic, and most importantly a new set of speakers' (Bernstein 1996:162). In addition Muller proposes 'grammaticality' to describe how theoretical statements deal with their empirical predicates (cf. Bernstein's strong/weak external grammar). The stronger the (external) grammaticality of a language, the more stably it is able to generate empirical correlates and the more unambiguous because more restricted the field of referents. Though these concepts highlight features of knowledge structures, they do not analyse their underlying structuring principles.

Addressing this problem, Maton (in press) considers the form taken by theories and knowledge structures along two dimensions:

- (i) *semantic gravity*, or the degree of context-dependency of meaning; and
- (ii) *semantic density*, or the degree of condensation of meaning.

He notes that we can talk about of *processes* of "weakening semantic gravity, as one's understanding is lifted above the concrete particulars of a specific context or case, and strengthening semantic gravity, as abstract or generalised ideas are made more concrete; and of strengthening semantic density, such as when a lengthy description is 'packaged up or condensed into a term or brief expression, and weakening semantic density, when an abstract idea is fleshed out with empirical detail."

Processes of this kind are obviously essential to effective teaching and learning in any subject area. Consequently, as part of a project funded by the Australian Research Council investigating secondary school biology and history teaching, we have been concerned with interpreting such processes from a functional linguistic perspective, unpicking the linguistic

resources that are used by teachers and students to weaken semantic gravity and strengthen semantic density as various degrees of verticality are pursued. In this paper we will focus in particular on history discourse, looking at how participants and their activities are generalised, organised into phases, named as eras, and axiologically charged with moral values in relation to what can be termed ‘-isms’, such as ‘colonialism’.

Analysis has shown (Maton & Matruglio 2009) that the cultivation of students’ legitimate historical ‘gaze’ depends to a large degree on the ability of students to strengthen and weaken both semantic gravity and semantic density. In other words, students need to be able to move between the specifics of certain historical events or personages to wider issues of how to interpret these historically and to understand how they contribute to the construction of historical principles. Learning these types of shifts in semantic gravity and density are essential to the students apprenticeship into the community of historians and are often referenced explicitly in the classroom.

In addition, increased semantic density occurs through what Maton (2008) terms ‘axiological condensation’, where values become condensed within the discourse of history via the creation of ‘constellations’ or groupings of related terms and concepts around participants and their activities. One way of investigating the axiological charging of participants and their activities is through the linguistic theory of coupling (Martin 2009), which gives us an insight into how various constellations form throughout the discourse and how these constellations interact with each other as a realisation of the ‘cosmology’ of History. We will demonstrate how these constellations not only provide evidence of the nature of the legitimate basis for knowledge in history, but also how they can both construct an example of an ideal knower of history and therefore also be used by the teacher in the cultivation of the students’ historical gaze.

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