

disciplinary lines. We can observe each of these through use of the tables extracted from the DDC schedules.

The purpose of this article is not to demonstrate how collocative integrity has affected cataloger decisions. This work is a separate endeavor, with reports on this data surfacing in Tennis et al. (2012). Because of the complex nature of this topic, we present one conception here, collocative integrity. The concept of collocative integrity is perhaps more directed to the designer's and editor's views, not the cataloger's view.

To achieve the goals set out in this article, we approach the investigation of subject ontology and the construction of the concept of collocative integrity from a neo-pragmatic framework, which claims that words are tools for action (Rorty, 1982, 1999). In this particular case, we also are informed by Berger and Luckman's (1967) work on social constructionism, and the tenet that once something is constructed, say a classification scheme, it can be used in many different ways and thus must be understood independent of its creators. That is, we hold that a subject has a life of its own (metaphorically), and we need to better understand that life to critique the value and functionality of long-lived classification schemes that change over time.

An analogy might be that we understand aerobic or anaerobic mechanisms of the body so that we can be better at helping others with their fitness routines. A basic knowledge of the underlying mechanisms of a system, whether it is blood/oxygen exchange or subject ontology, will allow us to make informed changes to the routines that relate to that system. For example, we can change workout regimes, or in the case of classification, change our work practice of classing and changing classification schemes.

This approach is useful for us because it (a) acknowledges the language at work in classification and (b) provides for a way in which we can handle the object of study as separate from its creators and separable from its history.

This work is a case study, one of hopefully many more that can document the varieties of change in schemes, operating at a level of detail that makes clear our assumptions about semantics and structure over time. We believe this is an advancement of our understanding of schemes and the ramifications of change based on an assumption about the *raison d'être* of classification schemes. There is a neo-pragmatic functionalism in this approach; namely, that the use of a particular kind of language (the DDC) to collocate documents in a collection over time is a pragmatic act. In this perspective, the DDC is an assemblage of words used for action. Because it is a pragmatic act, the action of collocation is the beginning and end of our concern. How does the designer of a scheme collocate kinds of subjects? If the subject is in one place for its entire life in the scheme, there is no question about its collocative integrity. If it changes, and changes dramatically, then we have to signal this to the designers and editors in a particular way, such that the functional requirements of classification are retrained. Thus, we need to study the nature of these changes case by case, assemble a body of knowledge around these cases, abstract

from them a theory (or set of theories) about how change occurs, and from here, design interventions that could help designers of schemes.

Finally, following Rorty (1982, 1999), we posit that the findings from a neo-pragmatic study of subject ontology will be a set of vocabulary useful for understanding and designing for scheme change.

## DDC: The Case of Eugenics

The DDC has gone through 23 editions in its full form. First authored by Mevil Dewey in 1876 as a pamphlet that listed a few classes of subjects, the DDC has grown into a multivolume work. Many editors have been involved in the evolution of the scheme (Comaromi, 1976), and coupled with the evolving nature of subjects published, it has changed over time—sometimes dramatically.

Miksa (1998) described three major periods of change: (a) Beginnings, which spans Editions 1 to 6 (1876–1899); (b) Conflict, spanning Editions 7 to 15 (1911–1953); and (c) Recovery and Advance, which contains Editions 16 to 21 (1958–1996) (p. 5). Our case study moves from Conflict to the Recovery and Advance periods, 1911 to the present.

The DDC is primarily an enumerative scheme organized by discipline, meaning that most of the classes are explicitly listed. The classifier does not need to create them through synthesizing numbers (though it is possible to do so), and topics are organized by broad disciplinary categories such as Religion, Social Science, Science, and Literature. This means that a topic could appear in more than one place if it is studied from more than one disciplinary perspective. In many cases, topic regularly lines up with discipline: For example, anatomy is almost always studied in Biology and Art. And of course, the researcher interested in ontology also has to account for the philosophy of . . . or history of . . . questions of topics which would place them in Philosophy or History regardless of whether they are horseshoes or hand grenades.

However, not all topics make sense in this construction of topics and disciplines. For example, at its first appearance in the DDC, eugenics is a biological science. This is not a bizarre placement in 1911, but is so now (to many audiences), just as anatomy, which can be studied from any discipline, is so closely linked with biology and art that it is most commonly discussed in biology books and art books, and most commonly classed in Biology or Art. The case of eugenics is strange, for the reasons mentioned earlier but also because it has changed, within the scheme, from a science to a nonscience. The reorganization is a redefinition in a forceful way, such that even if there were a book on eugenics written from the biological perspective, it could not go into the life sciences in the same position—thereby negating outright any collocative integrity. The DDC reflects this change quite clearly because of its disciplinary organizational structure. So although it was once possible to say through the lens of the classification scheme that there are