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Chronotope and Classification: How Space-Time Configurations Affect the Gathering of Industrial Statistical Data

Abstract: Bakhtin’s theory of the chronotope is used to examine how representations of space and time affect the first six classes of the North American Industrial Classification System. By examining the class sequence as a narrative of the product life cycle, the study suggests that this new classification system, designed to harmonize the gathering of statistical data among the three countries of North America, manifests an economic paradigm which diminishes the visibility of community ties based on geographical proximity, community identity, and communication across social and economic barriers.

1. Introduction

This paper was inspired by a challenge and a metaphor, both of which appeared in Bowker and Star’s recent work on classification (2000). First, the challenge. Human society suffers, the authors argue, from “an impoverished vocabulary for collective moral passages” (Bowker and Star, 2000, p. 6), and this prevents us from completely understanding classifications, which, in their complex evolution and maintenance, require us to comprehend moral activity that works by long-term accretion and collaboration, rather than by an individual’s rational choice. Second, the metaphor Bowker and Star frequently refer to classification systems as stories: “standard narratives that appear universal” (Bowker and Star, 2000, p. 41), but which are really a series of choices, each of which silences one voice and valorizes another.

This paper attempts to use the metaphor to rise to the challenge. By treating classifications specifically as narratives, and subjecting them to narrative theory as developed in the humanistic disciplines, classification theorists could enrich the vocabulary of collective moral passages, and provide the tools for more sophisticated and telling critiques, not just of classification systems, but of the social, political and economic power structures that create and sustain them. What follows is a test example, in which I analyze an excerpt from the North American Industrial Classification System, and explore how Mikhail Bakhtin’s narrative theory of the chronotope enables us to uncover assumptions and patterns that might otherwise be overlooked.

2. The Social Context of Classification

Modern classification theory readily acknowledges that classifications are social constructs. Current theorists have analyzed classifications as artifacts embedded in particular information cultures (Hjørland and Atbrechtsen, 1999), and
as products of a social context, rather than an exclusively cognitive context (Jacob, 131). This social context gives the classification its intellectual coherence, and constrains the kinds of questions that can be posed within it.

However, these assumptions can be difficult to trace and acknowledge, partly because they manifest themselves through complex networks of rules and guidelines. Second, these assumptions are frequently expressed, not through what is spoken or written, but by subtle interactions between speech and silence, between explicit and implicit, similar to the interaction between speech and silence which, according to Foucault, characterizes Western society’s treatment of sexuality: the “perpetual spirals of power and pleasure” (Bowker and Star, 2000, p. 45).

Some of these assumptions may emerge if we treat a classification system as a narrative: a collection of incidents in a particular sequence. This is hardly an unusual approach. Narrative theory has been used successfully by various scholars examining genre in electronic documents (Smoliar and Baker, 1997), text linguistics (Beghtol, 1986) and discourse analysis (Beghtol, 1997). Furthermore, by treating a classification as a narrative sequence, we can also use related classification theories of sequence: in particular, Ranganathan’s principle of “Helpful Order” in an array.

3. Classification Theory: Ranganathan and the Concept of “Helpful Order”

The most obvious correlation between narrative and classification theory lies in Ranganathan’s principle of class sequence. “The sequence of the classes in any array,” he argues, “should be helpful” (Ranganathan, 30). In the various principles he enumerates for such sequences—decreasing extension, increasing concreteness, spatial contiguity, canonical sequence—he assumes that the user moves through a systematic arrangement in linear fashion, and that that linear progress should make some kind of sense, even if it is only dimly perceived.

Time and space play prominent roles in this principle of helpful sequence, in two ways. First, by assuming that the user moves along the shelves in sequence, Ranganathan assumes that helpful order involves determining whether a user encounters a subject sooner or later in the browsing activity. Furthermore, the sequence ensures that certain facets will be encountered next to each other on the shelves, while others will be spatially separated.

Second, both time and space are important determinants of order in themselves: principles such as evolutionary order and spatial contiguity assume that a meaningful arrangement often involves placing documents in chronological sequence, or by geographical location. A topic such as “India during the time of British Rule,” for instance, would have two temporal dimensions to it: the period in India’s history that corresponds to British Rule, and the moment at which the user would encounter such a topic in a horizontal movement through a sequence of documents. Similarly, a topic such as “education in Great Britain” would refer both to the geographical area known as Great Britain, in relation to other geographical areas, and the specific location on the shelves in which that topic may be found, in relation to documents on education in other areas.
4. Narrative Theory: Mikhail Bakhtin and the Concept of the “Chronotope”

Since time and space are prominent structuring principles in helpful order, a narrative theory that specifically addresses space-time configurations would be useful. Mikhail Bakhtin offers such a specific concept with the “chronotope”: “the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature” (84). In his discussion of ancient narrative genres, Bakhtin isolates three distinct chronotopes which correspond with three primary types of story:

- The adventure novel of ordeal, in which the protagonist leaves the normal world to move through a dream-like landscape, experiences a variety of random adventures, and then returns to the everyday world at the same moment he left;
- The adventure novel of everyday life, in which the hero moves through the everyday landscape in chronological sequence, but who experiences events as a series of disruptions and transformations in the ordinary nature of things;
- The biographical narrative, in which the protagonist again moves through the everyday landscape in chronological sequence, but who experiences events as a process of continuity and development.

If we transfer this paradigm to the context of classifications, and particularly to the order across classes of the system, we can pose 4 primary questions:

- In the helpful sequence, who or what is the “protagonist” of the development across the classes?
- Is there a temporal principle in the order of classes, which assumes that time is passing between one class and the next?
- Is the sequence that governs the movement from one class to the next based on continuity or disruption?
- Does the order of the classes relate to the “everyday world,” or does it set up an abstract space?

5. The North American Industrial Classification Scheme

5.1 Background

The North American Free Trade Agreement (NAFTA) was a highly controversial arrangement to lower trade barriers between Canada, the United States and Mexico. The deal was signed in 1994, over the vociferous opposition of such groups as the Council of Canadians, who argued that Canada, by entering into the agreement, was losing its economic and cultural sovereignty.

As part of NAFTA, the statistical agencies of the United States, Canada and Mexico have agreed to adopt a harmonized classification system for the collection of statistical data. This replaces Canada’s 1980 Standard Industrial Classification, and was designed with two primary objectives. First, although industrial classifications are used for a wide variety of purposes, ranging from legislation to employment searches, the primary purpose of NAICS is to gather statistics: “Government departments and agencies and other users that use it for
administrative, legislative and other non-statistical purposes, are responsible for interpreting the classification for the purpose or purposes for which they use it” (Statistics Canada, 1999). Second, it is designed to harmonise the data between the three members of NAFTA, so that all three countries are collecting economic data in a way that facilitates comparison across the three member countries.

If we compare the 1980 Standard Industrial Code with the North American Industrial Classification according to the four questions posed by Bakhtin’s chronotope theory, some intriguing differences come to light.

5.2 Who or What is the Protagonist?

According to the NAICS documentation, previous classifications, such as the Canadian SIC 1980, “have all used mixed criteria” when defining industries in their classification (Statistics Canada, 1999). One of the achievements of NAICS is the clarification of the main unit of classification as the “producing unit”:

NAICS is based on a single production-oriented concept. Producing units are grouped into industries according to similarities in their production processes. The boundaries between industries demarcate, in principle, differences in production processes and production technologies. This means that, in the language of economics, producing units within an industry have similar production functions that differ from those of producing units in other industries. (Statistics Canada, 1999)

If, however, we examine the sequence of classes in the first half of the NAICS classification, we see a different narrative and a different protagonist. NAICS divides roughly into two halves, the first devoted to production of goods, and the second to provision of services. The production of goods has 6 main classes as follows:

11 Agriculture, Forestry, Fishing and Hunting
21 Mining and Oil and Gas
31 Manufacturing
41 Wholesale
44-45 Retail
48-49 Transportation and Warehousing

In terms of the class sequence, the protagonist is not the “producing unit,” but rather the economic commodity, working its way from primary production, by cultivation or extraction, through the manufacturing process to its distribution and sale. This is a familiar pattern, similar to the classification of the Book Sciences in the Library of Congress Classification. But it suggests that the explicit unit of measure in the classification documentation is not the same as the unit of narrative sequence, at least in the first half of the classification.

5.3 Temporal Context

Because the classification follows an evolutionary sequence in the first half of the schedules, the temporal context is roughly continuous for the product side of the classification. The sense of temporal continuity has been enhanced with NAICS by the collapse of several primary industries into one category that had previously held separate ones. In SIC 80, the first four classes were assigned to agriculture, fishing and trapping, logging and forestry, and mining respectively. In NAICS, these have been collapsed into two categories, thereby launching the temporal movement from extraction to refinement more quickly and obviously.
5.4. Sequence

Despite this smooth progression, however, the NAICS paradigm undergoes an abrupt transformation from production to services; beginning with the information and cultural industries, the classification shifts into service industries such as finance, real estate, education, health care, arts and entertainment and other services, with Public Administration bringing up the rear.

5.5. Spatial Context

By defining the producing unit as the unit of measure, NAICS has introduced subtle changes to the spatial dimensions of industry statistics as enshrined in SIC 80. Because producing units are grouped according to similarities in production processes and production technologies, certain activities have been displaced from their previous contexts. In some cases, the industry is moved to another part of the product’s narrative sequence. “Bait preparation and supply service,” for instance, which was formerly classed together with fishing in the Fishing and Trapping Industries, has been displaced to the Wholesale Trade at class 41. Similarly, “Production of transportable goods,” formerly part of Mining, has been moved to Manufacturing. In such cases, the industry has been relocated to another stage of the narrative sequence, but has not been displaced entirely.

In other cases, the industry has been moved to the other side of the product/services divide, and has been expunged from the production narrative entirely. In Agriculture, for instance, veterinary services, soil and seed testing services, agricultural consultancy and agricultural research and development have been displaced to Class 54: Professional, Scientific and Technical Services. Fisheries research and development has been also been moved from Fishing to Category 54; the repair of fishing gear now lives in Class 81: Other Services, and Fishery Patrols are now in Class 91: Public Administration.

This separation of product and service creates a rupture in NAICS between the spatial dimensions of arrangement within the classification and the spatial dimensions of the physical, social and cultural world in which these industries exist. By removing services into their own area, NAICS provides a highly abstract picture of economic relationships as social and cultural phenomena. By depicting agriculture as a series of activities divorced from veterinary services and agricultural research, and fishing as an activity distinct from fisheries research, NAICS-classified statistics present an economic picture which radically diminishes the visibility of community ties based on geographical proximity, community identity, and communication across economic barriers.

6. Conclusion

It would be absurd to equate classification systems and literary narratives, and insist on a one-to-one correspondence between an ancient Greek romance and a twenty-first-century industrial classification system. Nonetheless, Bakhtin’s theory of the chronotope does, I believe, provide us with some tentative tools for enhancing our vocabulary of collective moral activity. By analyzing the narrative structures inherent in the class order of NAICS, we may provide those who are urgently querying globalization trends with fresh means of exploring and articulating their reservations and concerns.
References


