Events and Periods as Concepts for Organizing Historical Knowledge

by

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Abstract

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Events and periods are not objectively existing phenomena, but *concepts* we use to organize our knowledge of history. They make historical change comprehensible and help us orient ourselves with respect to the wider culture in which we participate. Thus they are indispensable for describing both the content of history scholarship and the context of documents that serve as evidence for that scholarship. As historical discourse shifts its emphases and new aspects of the past come to be considered significant, periods and events are subject to constant change. Despite this change, we can model historical periods and events in systems of knowledge organization because it is possible to discern and formally describe relatively stable recurrent patterns in their narration.

大好きな有紀とあいりにこの博士論文を捧げます。

Contents

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Chapter 1

Introduction

> As a child, I could not color within the lines. Nor interest myself in children's books. I also had trouble with categories, and this I have never outgrown. I have trouble understanding the concept of eras, I question the line in our culture that separates organic and inorganic, I talk to trees but also speak to rocks, I distrust chunks of meaning called the Ancient World, the Dark Ages, the Renaissance, the Reformation, the Age of Enlightenment, the American Century.
>
> Charles Bowden, "Contested Ground"

During my teens, I was often struck by the fact that I seemed to be living through an important period of history. The fall of the Berlin Wall when I was thirteen, followed by the dissolution of the Soviet Union over the following two years, marked (I was told) the end of the cold war and the beginning of a new, as yet unnamed, era of peace and prosperity. This was quickly followed by the invention of the World Wide Web and the dawning of a new information age. Like a tourist who, ignorant of the schedule, arrives at Buckingham Palace just before the Changing of the Guard, I considered my timing to be very lucky. Luckier certainly than my parents, who, having been born shortly after World War II, had to wait forty years for anything important to happen!

In my mid-to-late twenties my timing seemed to have taken a turn for the worse. Where in my teens bad old eras had given way to new and exciting ones, in my twenties I witnessed America's tragic entry to the ominous post-9/11 world. The darkness of the Bush era ensued, fading into the Great Recession shortly after I turned thirty. Perhaps my parents hadn't been so unlucky to spend their formative years in the quiet stasis of Pax Americana.

What gave me the sense of living in interesting times? What imparted a rosy tint to my view of my teens and early twenties, and a gray cast to my view of my late twenties and early thirties? In part, it was the chunks of meaning called *the cold war*, *the information age*, *the post-9/11 world*, and *the Great Recession*. These were not simply convenient labels but packages loaded with stories about where I was, how I got to be there, and where I might be headed. These periods transformed things that happened into significant events marking the ending of one thing and the beginning of another. They were concepts with the power to change the way I thought about my life even when the events they baptized didn't directly affect me.

These kinds of powerful concepts—periods and events—are the subject of this dissertation. Periods and events are concepts that organize our understanding and knowledge of the past. Like

other concepts, they are a shifting product of human thought and discourse, although their power and relative stability can make them seem to be simply "what happened."

Historians name events and periods and give them form and content. Philosophers interested in history have analyzed how historians do this and the implications it has for our understanding of the past. Though I draw heavily on the work of historians and philosophers, in this dissertation I approach periods and events from a different perspective: knowledge organization. Knowledge organization is concerned with the processes of organizing documents and concepts and the systems that facilitate these processes. I argue that the practice of history is a form of knowledge organization in the broad sense.

The goal of this dissertation is to provide an account how events and periods organize historical knowledge that is sufficient to guide the design of knowledge organization systems for history and the humanities. Knowledge organization systems are tools, and typically dissertations that focus on tools are filled with technical detail. This dissertation is not like that. Although my ideas have been inspired by my experiences building tools, I have intentionally tried to exclude technical detail. Specific technologies and techniques for knowledge organization come and go, and implementation choices depend heavily on the particular context of use. Furthermore, technical detail can hamper understanding of the issues and principles that are likely to persist through changes in technological fashion. Understanding the nature of the issues involved should provide a better-informed basis for building better tools.

1.1 Organization of the Dissertation

In chapter 2 I examine the meanings of the word *history*. I argue that history is, among other things, a particular way of conceptualizing the past. The concepts that historians develop can be categorized into different types, and I explain what these types of concepts are and how they are related to one another.

In chapter 3 I present the case for viewing history as a particular form of knowledge organization. The organization of knowledge as it is typically carried out in collecting institutions such as libraries, archives, and museums is shown to be continuous with history scholarship. All along this continuum people endeavor to describe both concepts that make the past intelligible and documents recognized as survivals from that past. I argue that this continuum has been artificially divided due in part to differences in the physical characteristics of documents and the limitations of our knowledge organization technologies. These differences and limitations are reduced in a digital environment creating the opportunity to make the continuum more evident.

In chapter 4 I take a closer look at the concepts historians use to represent change and stability over time: events and periods. Periodization is an important part of the historian's craft, and many historians and philosophers of history have developed accounts of how periodization is or should be done. I analyze the relationship between periods and events, and show how the concept of the historical event has changed with changing conceptions of historical practice.

In chapter 5 I assess the need for specialized knowledge organization systems focused on periods and events: *event directories*. Event directories are simplified models of events and periods and their relations to other concepts, constructed to enhance access to historical documentation and understanding of historical discourse. I break down the ways event directories should enhance access and understanding into a set of functional requirements.

In chapter 6 I offer a set of design principles and patterns for building historical event directories. I suggest that event directories are best designed in two tiers, the first focusing on events as "factual" concepts and the second focusing on periods as "interpretive" concepts. Each of the two tiers is illustrated with a representative example.

In chapter 7 I review my arguments and summarize the contributions I've made. I finish by suggesting some possible directions for future research.

Chapter 2

History and Concepts

> History, a description or recital of things as they are, or have been, in a continued orderly narration of the principal facts and circumstances thereof. History, with regard to its subject, is divided into the history of Nature, (See Nat. Hist.) and the history of Actions. The history of Actions is a continued relation of a series of memorable events.
>
> *Encyclopædia Britannica*, 1771

The word *history* has three senses. The first sense is *history-as-past*. When one uses the word *history* in this sense it means some set of past actions or happenings. This set might be *all* past actions or happenings: everything that happened before the present time. In that case *history* is synonymous with *the past*. If one wished to make a fine distinction, one might say that *the past* denotes all the time that has passed before the present moment and *history* means everything that happened during that time. But history-as-past might also mean some subset of everything that happened, such as when I refer to *Japanese history* or *Japanese railroad history*. Whatever the set of actions or happenings might be, we cannot experience them in any direct way. We might experience memories or other traces of those past happenings, but the happenings themselves no longer exist.[1]

The second sense is *history-as-portrait*. One uses *history* in this sense to refer to some organized, intelligible structure and to make the claim that this structure represents the past. Typically, history-as-portrait takes the form of a spoken or written narrative—a *story*—but there is no need to limit it to spoken or written words. The Atlanta Cyclorama depicting the Civil War Battle of Atlanta is a pictorial history. *The Birth of a Nation* is a cinematic history of the Civil War and Reconstruction. *Lords of the Samurai*, an exhibition at the San Francisco Asian Art Museum, was a history of the warrior class of feudal Japan. History-as-portrait is a form of communication, and communication can only occur in present experience, such as when one listens to an account, reads a story, looks at a picture, watches a film, or examines an exhibition. So, unlike history-as-past, history-as-portrait is part of our present experience.[2]

1. In fact it is possible to be skeptical about whether anything at all happened prior to the present moment. Bertrand Russell famously argued that "there is no logical impossibility in the hypothesis that the world sprang into being five minutes ago, exactly as it then was, with a population that 'remembered' a wholly unreal past." Bertrand Russell, *Analysis of Mind* (Florence, Kentucky: Routledge, 1995), 132.

2. This is true even if time has passed since one had first-hand experience of some history-as-portrait. It has been

The third sense of *history* is "doing history": *history-as-practice*. When one refers to history as a discipline one uses *history* in this sense. History-as-practice involves scholars asking questions about the past, conducting research by examining documents, developing interpretive judgments and communicating these judgments through the medium of history-as-portrait. History-as-practice involves not only history scholars, but all the actors and systems that enable, support, mediate, and organize what history scholars do. In particular, it involves the professionals Robert Berkhofer called "historians of first resort"—librarians, archivists, and curators—as well as the systems and tools those professionals create, such as catalogs, bibliographies, finding aids, inventories, and so on.[3]

History-as-practice also encompasses what is known as "cultural heritage." Our cultural heritage is that which we have "inherited" from the past. Those who engage in history-as-practice study survivals from the past—documents, including material culture—but we do not equally recognize all survivals as part of our inheritance. Which survivals we recognize as "heritage" depends in part upon which histories-as-portrait we embrace. Certain groups may wish to canonize some survivals as cultural heritage in order to exploit them for political, commercial, emotional or other practical purposes. They may seek to achieve this by popularizing certain histories-as-portrait. Michael Oakeshott wanted to distinguish this kind of "practical history" from histories assembled as answers to specific scholarly questions about history-as-past.[4] While such a distinction has its place, here I include both practical and scholarly history under the heading history-as-practice.

Historians engaged in history-as-practice presume the existence of history-as-past and aim to create history-as-portraits of that past. In this dissertation I am only indirectly concerned with history-as-past. I am primarily concerned with history-as-practice and the design of systems that support history-as-practice by organizing historical knowledge. Recorded historical knowledge—including survivals from the past as well as histories-as-portrait—is in its various forms amenable to organization within a system. History-as-past, being neither recorded knowledge nor current practice, is beyond the reach of any organizational system. History-as-past functions only as the postulated object of history-as-practice and as the absent subject of history-as-portrait.

When designers of systems for organizing historical knowledge confuse history-as-portrait with history-as-past, they risk designing systems that solve the wrong problems. They risk designing systems that attempt to describe the past, instead of describing the concepts historians retrospectively construct and the documents they use to construct them. A system that only describes the past is just another history-as-portrait and does not satisfactorily support *doing* history.

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over twenty years since I saw the movie *Platoon*, but it is the present-day memories I have of it that still influence my understanding of the Vietnam War.

3. Robert F. Berkhofer, Jr., *Fashioning History: Current Practices and Principles* (New York: Palgrave Macmillan, 2008), 97. Henceforth when I use the word *historian* I mean it in this broad sense, and will use the phrase *history scholar* when I want to refer to people who identify themselves primarily as historians.

4. Michael Oakeshott, *Experience and Its Modes* (Cambridge, UK: Cambridge University Press, 1966); Michael Oakeshott, *On History and Other Essays* (Indianapolis: Liberty Fund, 1999).

2.1 History as Conceptualization

One can characterize history-as-practice in different ways depending on one's interests. Some people wish to characterize history-as-practice as a science and thus emphasize historical method and the logic of historical reasoning. Others wish to characterize history-as-practice as a form of art or literature and thus emphasize its rhetorical and representational aspects. Here I emphasize the role of *conceptualization* in doing history. When we do history, we produce concepts that organize our understanding of the past, and we articulate these concepts through history-as-portrait. History-as-practice presents history-as-portrait in place of history-as-past. As the French historian Henri-Irénée Marrou wrote, "To know (in this case, to know historically) is to substitute a system of concepts elaborated by the mind for the raw event itself."[5]

Concepts stabilize discourse by providing an intersubjective basis upon which we can compare what we think about or talk about.[6] Historians use concepts as stable subjects to illustrate some process of historical change. Even when a historian sets out to describe some relatively static situation or "cross-section of time," he must presume some larger process of change, if only to have some basis for deciding when his cross-section should begin and end.[7] One cannot give an account of change unless one presumes some thing to be changing.[8] Thus the historian must propose that some thing is the "same" thing despite having changed, what Oakeshott called a "changing identity."[9] Places are prototypical changing identities: Tokyo has existed since at least the twelfth century, but nearly everything about it has changed, including its name. Historical concepts function as changing identities despite, or perhaps because of, a certain fuzziness. The historical concept need not be and probably cannot be rigorously defined. "What is required of it is that it should be stable and should be consistently adhered to, not that it should be absolutely clear and coherent."[10]

Concepts are "dynamically constructed and collectively negotiated meanings" that do not exist in isolation but depend on a system of relationships with other meanings.[11] Any understanding consists of a system of interrelated concepts, and this system may be more or less coherent. We can view the search for "truth" in some domain as an attempt to make a particular system of understanding more coherent. This is known as a *coherence* theory of truth, and it can be contrasted with a theory that defines the truth of a conceptual system as the degree to which it corresponds with some external reality. A coherence theory of truth is particularly useful for understanding historical truth, given that the ostensible reality with which we might want our concepts to correspond—history-as-past—is inaccessible. Historical truth, because it has nothing to correspond with, can only be defined as coherence with the understanding we have of survivals from the past (documents, including material culture) and the concepts we share with our predecessors

5. Henri-Irénée Marrou, *The Meaning of History*, trans. Robert J. Olsen (Baltimore: Helicon, 1966), 155.

6. Birger Hjørland, "Concept theory," *Journal of the American Society for Information Science and Technology* 60, no. 8 (2009): 1519–1536, doi:10.1002/asi.21082, http://doi.wiley.com/10.1002/asi.21082.

7. Berkhofer, Jr., *Fashioning History*, 52.

8. Arthur C. Danto, *Narration and Knowledge* (New York: Columbia University Press, 2007), 235–236.

9. Oakeshott, *Experience and Its Modes*, 123. The paradox and problem of the "changing identity" have been much commented upon. Indeed, many debates over history-as-practice boil down to arguments about whether historians should try to generalize about processes of change or describe individual situations in their specificity. I return to this issue in chapter 4.

10. Ibid., 120.

11. Hjørland, "Concept theory," 1522.

and interlocutors.[12]

The notion of truth is inextricably bound up with the notion of a fact. *Fact* can have many meanings. WordNet distinguishes four different senses of *fact* in popular usage.[13] Two of these senses identify a fact as a kind of information, either as an abstract piece of knowledge ("we don't yet know all the facts") or as some thing that encodes such knowledge ("the facts are printed here in black and white"). A third sense identifies a fact not as information, but as an actual state of affairs in the world ("his account doesn't fit the facts"). The fourth sense, which is the one I use here, identifies a fact as a kind of concept. Specifically, a fact is a kind of concept whose truth can be proved or disproved, by virtue of its being related in a certain way to a broader system of concepts.

We establish and organize facts within systems of concepts.[14] Systems of concepts include things like theories and arguments and narratives. These systems are not themselves concepts, but they can construct or articulate new concepts. As I argue in the remainder of this chapter, historians organize facts into systems that take narrative form (histories-as-portrait). These narratives constitute concepts like "the Scottish Enlightenment" and "the French Revolution": not facts, but syntheses constructed through historians' narratives. The historical narrative brings together individual facts and other concepts and creates the system of relationships that joins them. When we treat the synthesis thus constructed as a complete whole, it becomes yet another concept: not a fact, but a synthesis of facts. A synthesis of facts presents a particular point of view on reality and, unlike a fact, it cannot be proven to be true or false. One can claim that a particular synthesis of facts is broad or narrow, confusing or clarifying, but only the individual facts it synthesizes can be true or false. So we have at least two kinds of concepts: facts and syntheses of facts. Both are things we can understand but only facts are things we can prove.[15]

Conceptual systems are composed of a mix of "active" (culturally or socially determined) and "passive" (seemingly empirical) components or relations. As Ludwik Fleck demonstrated in his study of the history of the concept of syphilis, at any given time there may be different yet comparably coherent systems of understanding the world. When we choose between such systems we are influenced not only by our observations of the world, but also by elements such as our cultural history or social milieu or style of thought. These elements, which Fleck called the "active" relations among concepts in a system of understanding, provide the background against which we see other "passive" relations—our empirical observations or the laws we infer from them—as necessary or determined by the world.[16]

In history, and the humanities and human sciences more generally, active relations take on a more significant role than they do in the physical sciences. History is concerned with the world of human experience and action and with more or less continuous processes of change. These pro-

12. Oakeshott, *Experience and Its Modes*, 113–118.

13. *WordNet*, s.v. "Fact," `http://wordnetweb.princeton.edu/perl/webwn3.0?s=fact` (accessed July 21, 2010).

14. This is a somewhat misleading way of putting it, since it is its becoming part of a system that makes something a fact. But it is still useful to make a distinction between a fact and the larger conceptual system that makes it a fact.

15. It is sometimes said that "truth is the best propaganda." While usually interpreted as a maxim along the lines of "honesty is the best policy," it also serves to illustrate the point I am making here. Effective propaganda consists of a selective and therefore misleading arrangement of facts. The individual facts may be unassailable, and the arrangement as a whole cannot be "proven" either way. One can only claim that it doesn't present the "whole picture," or does so from a "twisted perspective."

16. Ludwik Fleck, *Genesis and Development of a Scientific Fact*, ed. Thaddeus J. Trenn and Robert K. Merton, trans. Fred Bradley and Thaddeus J. Trenn (Chicago: University of Chicago Press, 1979).

cesses, unlike the ones physical scientists are concerned with cannot be replicated in a lab. Discrete units of study do not present themselves as much as they seem to do in the physical sciences. This may be due to some inherent amorphousness in the things themselves, or it may be a result of the methods we must use to feel that we have reached an understanding of these things. Whatever the reason, the result is that historians must actively construct the concepts that provide unity and continuity for their objects of study. They must do so without the kind of strong "passive" factors that seem to necessitate agreement on units of study among physical scientists. As a result, systems of understanding in history are less coherent, and so historical concepts are less clearly defined and "incorrigibly soft."[17]

"Soft" concepts present a number of difficulties for knowledge organization, which I discuss in chapter 3. But despite concepts in history being unavoidably soft, we can discern some structure in them. Philosophers of history and theoretically-minded historians have developed critical and analytic theories of history that systematically describe how history-as-practice produces concepts and how history-as-portrait presents these concepts. The remainder of this chapter provides an overview of this work by presenting a typology of historical concepts.

2.2 Typology of Historical Concepts

Historians develop and rely on several kinds of concepts when they produce history. Here I distinguish between those concepts that historians use without explanation, assuming that their audiences will grasp them, and those concepts that historians aim to establish through their histories. The former are *ordinary* concepts and the latter are *colligatory* concepts. Within the latter category, I further distinguish three kinds of concepts: *characters*, *ideal types*, and *periods*.

2.2.1 Ordinary Concepts

Historians use relatively little specialized terminology and pride themselves on their ability to use "ordinary language" to represent the past. Even when they borrow concepts from the social sciences, or use quantitative techniques to develop their models, historians usually present these concepts and models in terms understandable by a general audience. As a result history is one of the few forms of academic scholarship that is widely read outside the academy. This partly accounts for the porous boundaries between history as an academic discipline and the wider world of history-as-practice.

Though historians may conceive of ordinary language as free of conceptual or theoretical baggage, it relies upon a background of general ideas expected to be understood by the historian's audience. These ideas influence the audience's expectations and provide the grounds for the plausibility of the historian's account. The philosopher Arthur Danto gave the example of the con-

17. Patrick Wilson, *Second-Hand Knowledge: An Inquiry into Cognitive Authority* (Westport, Connecticut: Greenwood Press, 1983), 105. Sociologists of science have convincingly demonstrated that the relative "hardness" of scientific concepts is produced by the organization of scientific practice and not something inherent to the objects of study. Scientific concepts appear "harder" because scientists are more successful at enrolling the kind of support necessary to make the relevant relations seem to be given facts rather than constructed theories. Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, Massachusetts: Harvard University Press, 1987). When scientific paradigms change and this support breaks down, the "softness" of scientific concepts becomes apparent. Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962).

cept "artist." This is an ordinary-language term, not specialized jargon. Historians typically use it without defining it or interrogating its meaning. Yet to call an individual an "artist" prepares the audience to expect an account of certain kinds of activities. Precisely what these expectations are will depend of what kinds of general ideas people have about artists at the time the history is produced. Danto called these kinds of general ideas "conceptual evidence", and argued that histories rely on such conceptual evidence just as much as they do on documentary evidence.[18]

Marrou emphasized the "universal ambition" of these ordinary concepts, their seeming applicability at any time or place.[19] Indeed, some of these concepts do seem to be universally applicable. For example, we understand *a human* as someone who is born and who dies, and who in between has a continuous bodily existence. Any biography, or any history at all, presupposes such an understanding of *a human*. Paul Ricœur argued that we can identify a whole set of such understandings, which are universal by virtue of the fact that they are grounded in our intersubjective experience of time and reality. So, for example, we take it for granted that there are autonomous agents in the world, that these agents have goals, that these goals motivate the taking of actions, and that those actions have consequences that may or may not coincide with the goals. All of these concepts—agents, actions, motives, goals, consequences—compose a universal conceptual framework that is part of the basic competence one must have before there can be any further understanding of the world. The kinds of questions traditionally said to guide historical inquiry—*who?*, *what?*, *where?*, *how?*, *why?*—presuppose the comprehension of this conceptual network, which Ricœur called the "semantics of action."[20]

Despite their universal ambition, most ordinary concepts are meaningful not universally but relative to some cultural context, for some group, in some time and place. Marrou observed that "[the historian] will often believe that he is thinking of man in universal terms when actually he is only imagining him within a narrower framework, borrowed from the experience of his own period."[21] Ordinary concepts form the background of unquestioned assumptions that underlie discourse.[22] Danto succinctly explained that "there is a social inheritance here, and the bulk of the generalizations we employ have been built up over the generations and have been built into the concepts we most of us employ most of the time in organizing experience and explaining how things happen."[23] All of these theorists stress the fact that these concepts are constantly changing. Yet because these concepts remain in the background and they change slowly, we are usually unaware of these changes.

As a result, ordinary language can mislead us if we assume that ordinary concepts have remained stable. Because concepts change independently of the names we give to them, we cannot

18. Danto, *Narration and Knowledge*, 122–127.

19. Marrou, *The Meaning of History*, 157.

20. Paul Ricœur, *Time and Narrative*, trans. Kathleen McLaughlin and David Pellauer, vol. 1 (Chicago: University of Chicago Press, 1984), 54–55.

21. Marrou, *The Meaning of History*, 159.

22. Variations on this idea of a background of taken-for-granted meaning turn up repeatedly in social scientific theory. Michel Foucault used the term *episteme* to refer to the ideas that make it possible to ask questions, and provide true or false answers to those questions, in some domain of discourse (such as history). Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977*, ed. Colin Gordon, trans. Colin Gordon et al. (New York: Pantheon Books, 1980), 197. Pierre Bourdieu, drawing on the work of Edmund Husserl, called it *doxa*, "the pre-verbal taking-for-granted of the world that flows from practical sense." Pierre Bourdieu, *The Logic of Practice*, trans. Richard Nice (Stanford, California: Stanford University Press, 1990), 68.

23. Danto, *Narration and Knowledge*, 241.

assume that terms mean what they once did. When we assume that some current ordinary concept corresponds directly to an ordinary concept from another time, we are guilty of "temporal provincialism," a form of anachronism.[24] This is a potential problem both for historians attempting to understand primary sources and for audiences attempting to understand histories produced in earlier times. When a historian perceives that the documents she is studying presuppose some concept that was taken for granted in their time, but has no counterpart in her own time, she must construct a new concept for her contemporary audience. This construction is not an ordinary concept but a colligatory concept.

2.2.2 Colligatory Concepts

Historians use ordinary concepts expecting that their audiences will understand them without explanation. Colligatory concepts, on the other hand, are explicitly constructed by historians. Usually historians construct colligatory concepts by writing texts, but complex images, documentary films, museum exhibits, simulated reenactments, or any other media which support combining concepts into wholes can serve as vehicles for colligation.

The term *colligation* was coined by the philosopher of science William Whewell. Whewell wanted to explain scientific induction, the process by which scientists develop general theories from specific observations. According to Whewell, empirical observations alone cannot produce new theories. Before a theory can explain observations, the scientist must first *conceptualize* the observations in a certain way: he must propose a certain point of view from which to regard the observations. This point of view originates not in the things he observes but in the mind of the scientist. The scientist "adds" to the empirical observations a concept that connects them into an intelligible whole:

> Thus in each inference made by Induction, there is introduced some General Conception, which is given, not by the phenomena, but by the mind. The conclusion is not contained in the premises, but includes them by the introduction of a New Generality. In order to obtain our inference, we travel beyond the cases which we have before us; we consider them as mere exemplifications of some Ideal Case in which the relations are complete and intelligible. We take a Standard, and measure the facts by it; and this Standard is constructed by us, not offered by Nature.[25]

Whewell illustrated his point with the example of successive conceptualizations of the motion of the planets. Observations of the planets at specific times yield only a set of positions. The Greeks proposed that these positions be regarded as points on wheels revolving within wheels. Later Kepler proposed that the "wheels" be regarded as ellipses, the shapes of which could be thought of as ratios involving their size and the distance from the sun. Newton then saw that Kepler's ratios could be viewed as effects of a central gravitational force. In each case a new conception was constructed that was not "given" by or directly observable in the things themselves—in fact each conception was later shown to *not* fit the phenomena perfectly. Yet each new conception enabled the observed things to be explained under a theory. Whewell likened colligation to a pearl necklace: "The pearls are there, but they will not hang together till some one provides the String."[26] The

24. Danto, *Narration and Knowledge*, 126.
25. William Whewell, *Novum Organon Renovatum*, 3rd ed. (London: J.W. Parker & Son, 1858), 73.
26. Ibid.

conception "binds together" or colligates the observations, and this colligation is the necessary but often overlooked first stage of induction.

Whewell's conceptions are similar to Fleck's "active components" of a system of understanding. Both are ideas that the scientist introduces and by virtue of which some observations come to be seen as "facts." Once a fact has formed, the conception or active component is no longer visible, having become part of what is now regarded as factual. The fact absorbs the binding conception, making it easy to overlook colligation and to assume that inductive generalizations rely solely on observations.

W. H. Walsh introduced the notion of colligation to the philosophy of history. He wanted to describe how historians discern unities in a morass of inferred behavior of past actors. According to Walsh, historians colligate individual actions under "appropriate conceptions," to which they refer using phrases like *the Industrial Revolution* and *the Enlightenment*.[27] Once a historian has brought together some set of actions under such a conception, he then has to relate several such conceptions to one another, and then to write a narrative of the actions that is organized by means of these conceptions and their interrelations. He then, usually, assigns a name to the new whole he has thus constructed.

By adopting Whewell's notion of colligation, Walsh seemed to be arguing that concepts like *the Enlightenment* are constructed by historians, not given by the happenings of the past. Yet his actual arguments are somewhat ambivalent on this point. Walsh argued that historians colligate by finding intelligible connections among actions, and that two actions can be considered to have an intelligible connection either because the "same" thought "lies behind" them, or alternatively if they can be viewed as steps in "the realization of a single consistent policy."[28] In other words, Walsh believed that historians do not so much construct colligatory concepts as discover them in the form of "dominant ideas" governing behavior in the past. These ideas may be explicit policies or they may be latent influences, but in either case it seems that Walsh understood colligation as the description of empirically given mental or cultural "things" in the past. Walsh made this clear in his later definition of colligation as "the procedure of explaining an event by tracing its *intrinsic relations* to other events and locating it in its historical context."[29] Walsh thus abandoned Whewell's original definition of colligation as an *extrinsic* relation that the historian brings to a set of facts, and replaced it with a definition of colligation as an intrinsic relation that the historian simply "traces."

Walsh's introduction of colligation to the philosophy of history proved fruitful. A number of philosophers and historians have picked up on and attempted to clarify the idea over the years. In doing so they too have contributed to subtle shifts in the meaning of the term. William Dray defined colligation as a summative or metaphorical generalization that arranges actions or happenings into a pattern.[30] Such a generalization is the historian's proposal of what the actions or happenings "amount to". Dray's definition is closer to Whewell's original notion of the colligatory concept as something imposed upon data by a mind rather than an intrinsic pattern discovered in

27. William Henry Walsh, "The Intelligibility of History," *Philosophy* 17, no. 66 (2009): 128–143, doi:10.1017/S0031819100003302, http://www.jstor.org/stable/3747302.

28. Ibid., 131–132.

29. William Henry Walsh, *An Introduction to Philosophy of History* (London: Hutchinson, 1951), 59 (emphasis added).

30. William H. Dray, "'Explaining What' in History," in *Theories of history*, ed. Patrick Gardiner (Glencoe, Illinois: The Free Press, 1959), 407–408.

the data. But where Whewell considered colligation to be a necessary first step toward explanation by laws, Dray argued that colligation was a distinct form of historical explanation, separate from scientific explanation by laws.[31]

Louis Mink also contrasted historical understanding with scientific explanation, arguing that history should be viewed as an autonomous mode of inquiry rather than an immature science.[32] He viewed colligation as an interpretive act in which one moves from seeing that a series of things happened to seeing those happenings as a synthetic whole. Mink called this interpretive act *synoptic judgment*. Like Whewell, Mink was careful to stress that synoptic judgment is not simply the bringing together of happenings, but the act of judgment or conceptualization that enables one to see those happenings as particular kinds of facts. Mink also emphasized that synoptic judgment is not only something that the historian exercises during her research process (history-as-practice), but that inducing this judgment or "seeing as" in her audience is the aim of the historical text (history-as-portrait). This insight closes the loop between Walsh's steps of narration and colligation, and makes it clear that *colligation* describes both the process by which a historian develops a historical understanding of some complex of happenings and the techniques by which she communicates that understanding to others.

Later Mink elaborated on his theory, recognizing the role that colligation plays in scientific theorizing but retaining the distinction between scientific theorizing and historical understanding. Mink introduced a new term, *comprehension*, which he defined as "grasping together in a single mental act things which are not experienced together, or even capable of being so experienced, because they are separated by time, space, or logical kind."[33] Mink's notion of *comprehension* is thus identical to Whewell's notion of *colligation*, in which observations not experienced together are nonetheless bound together via a mental conception.

Mink then distinguished three *modes* of comprehension: theoretical, categoreal, and configurational.[34] To *theoretically* comprehend some set of things is to see them as instances deducible from a general law. Physical scientists theoretically comprehend their observations: this is the specific mode of comprehension that Whewell focused on. To *categoreally* comprehend is to discern some a priori category governing our understanding of something. Mink was careful to distinguish this from theoretical comprehesion:

> Categoreal comprehension superficially resembles theoretical comprehension and is often confused with it ... The relation of theory to its objects is that it enables us to

31. This is understandable in light of Dray's campaign against "covering law" theories of explanations in history. Exemplified by Carl Hempel's 1942 article "The Function of General Laws in History," covering law theories claimed that historical reasoning and explanation were simply special forms of scientific reasoning and explanation by laws. Carl G. Hempel, "The Function of General Laws in History," *The Journal of Philosophy* 39, no. 2 (1942): 35–48, http://www.jstor.org/stable/2017635. Dray's *Laws and Explanations in History* was important for being the first systematic attempt to show how covering law theories failed to account for actual historiographical practice. William H. Dray, *Laws and Explanation in History* (Oxford: Clarendon Press, 1966). However, Hempel and his fellow logical positivists held a view of scientific reasoning held very different from the one held by Whewell and Fleck. In his eagerness to distance historical reasoning from logical positivism, Dray missed an opportunity to align it with an earlier, less rigid view of scientific reasoning.

32. Louis O. Mink, "The Autonomy of Historical Understanding," *History and Theory* 5, no. 1 (1966): 24–47, http://www.jstor.org/stable/2504434.

33. Louis O. Mink, "History and Fiction as Modes of Comprehension," *New Literary History* 1, no. 3 (1970): 547, doi:10.2307/468271, http://www.jstor.org/stable/468271.

34. Ibid., 549–552.

> infer and coordinate a body of true statements about that kind of object; the relation of categories to their objects is that they determine of what kind those objects may be. Thus a set of categories is what is now often called a conceptual framework: a system of concepts functioning a priori in giving form to otherwise inchoate experience. Perhaps the simplest examples of categoreal comprehension are those cases in which a concept belonging to a developed theory ... is extended to cover a range of instances for which the theory itself has no validity in principle. Thus we come, for example, to think of the "evolution" of ideas, as a way of conceiving what counts as an idea rather than as a theory about natural variation and selection.[35]

Philosophers typically attempt to categoreally comprehend things. Mink remarked that his discussion of modes of comprehension was itself in the categoreal mode.[36] The same is true of this dissertation. Historians, however, typically comprehend the past configurationally. To configurationally comprehend some set of happenings is to see them as part of a single and concrete complex of relationships. It is such complexes, Mink argued, that historians attempt to represent in their narratives through "a network of overlapping descriptions."[37]

A number of philosophers have attempted to further distinguish types of historical colligation. L. B. Cebik argued that colligation is merely a way of describing how concepts are used in practice and that there are two kinds of concept use. The first kind, which he called *conventional* use of concepts, is to rely on ordinary or conventionally accepted meanings. Arguing that historians' colligations are usually examples of conventional concept use, Cebik claimed that "'renaissance' and 'revolution' ... are common and ordinary concepts which children learn to use and which historians do use as literally as 'cow', 'table', and 'plum pudding.'"[38] This is clearly wrong. Historians are continuously debating the meaning of words like *renaissance* and *revolution* and whether they can usefully describe some set of happenings.[39] Furthermore, to conflate the ordinary use of concepts and colligation is to lose sight of Whewell's original and useful idea of colligation as of a conceptualization that brings new understanding. The ordinary use of concepts is not colligation at all, which is why I distinguish between ordinary concepts (see the previous section) and colligatory concepts. I consider colligation to coincide only with the second kind of concept use Cebik identified: the "creation of new concepts or the change of criteria for the use of present concepts."[40]

C. Behan McCullagh proposed that colligatory concepts be differentiated along two axes.[41] The first axis distinguishes the criteria for the colligation. *Dispositional* colligatory concepts are

35. Ibid., 550–551.
36. Ibid., 552.
37. Ibid., 556.
38. L. B. Cebik, "Colligation in the Writing of History," *The Monist* 53 (1969): 46.
39. Robert Stalnaker presented an excellent analysis of historical debates over the meaning of *the Rennaissance*. Robert C. Stalnaker, "Events, Periods, and Institutions in Historians' Language," *History and Theory* 6, no. 2 (1967): 166–176, http://www.jstor.org/stable/2504359. For an example of a recent debate over the applicability of the term *revolution*, see Anthony Grafton, Elizabeth L. Eisenstein, and Adrian Johns, "How Revolutionary Was the Print Revolution?" *The American Historical Review* 107, no. 1 (2002): 84–128, doi:10.1086/532097, http://www.jstor.org/stable/2692543.
40. Cebik, "Colligation in the Writing of History," 50.
41. C. Behan McCullagh, "Colligation and Classification in History," *History and Theory* 17, no. 3 (1978): 267–284, http://www.jstor.org/stable/2504740.

those that group past actions on the basis of some shared set of ideas or attitudes. For example, one might point to a shared set of liberal and radical ideas as the basis for arguing that the civil rights movement stretched from the 1930s to the 1970s.[42] This is the sort of colligation according to "dominant ideas" that Walsh focused on. *Formal* colligatory concepts, on the other hand, group processes of historical change on the basis of the shared form that the change takes. When the form of some process of change is sudden and intense, McCullagh contended, it is categorized under the colligatory concept *revolution*. Furthermore, because revolution is a form that many processes may share, it is a *general* colligatory concept. This is McCullagh's second axis, which distinguishes general colligatory concepts from *singular* ones. A singular colligatory concept identifies a unique historical individual such as *Napoleon's conquest of Europe*. General colligatory concepts like *revolution*, on the other hand, *classify* sets of historical individuals as instances of some type.

McCullagh's distinction between singular and general colligatory concepts is useful. His distinction between dispositional and formal colligatory concepts, on the other hand, does not withstand close scrutiny. Like Cebik, McCullagh oversimplified and distorted the process of historical conceptualization. McCullagh claimed that "quite often historians know the form of a change but are uncertain about the reasons for it. Having confirmed that a revolution has occurred, they then debate the reasons why."[43] This is a false distinction. There is no well-accepted form or template to which historians can compare some phenomenon to determine whether it qualifies as a revolution. To reach a conclusion regarding whether something is a revolution requires debating the reasons why that thing happened. Those reasons may include the postulated presence or absence of shared dispositions. McCullagh assumes that the scope of the concept of revolution is limited to questions of the form change took, but another historian might argue that revolutions are distinguished by a shared set ideas. Dispositional and formal aspects are not easily separable.

That McCullagh thought otherwise reveals a problematic assumption underlying his analysis. For example, he states that "feudalism has been discovered, not only in Europe, but also in Japan."[44] Marc Bloch provided the necessary counterpoint:

> What of the "feudalisms" throughout the world from China to the Greece of the beautifully greaved Achæans? For the most part, they bear scarcely any resemblance to each other. That is because nearly every historian understands the word as he pleases.[45]

McCullagh seemed to believe that historians dig processes of historical change out of the archives like fossils out of sediment. They then compare the shape of these fossils to those of previously discovered fossils in order to decide which formal colligatory concepts, like *feudalism* they should be classified under. I look more closely at general colligatory concepts like *feudalism* in section 2.2.2. For now, let it suffice to say that such a concept is not, as McCullagh would have it, a known species with which a historian can identify a fossil. Instead it is a heuristic device constructed by a historian.

42. Jacquelyn Dowd Hall, "The Long Civil Rights Movement and the Political Uses of the Past," *Journal of American History* 91, no. 4 (2005): 1233–1263, doi:10.2307/3660172, http://www.jstor.org/stable/10.2307/3660172.

43. McCullagh, "Colligation and Classification in History," 272.

44. Ibid., 273.

45. Marc Bloch, *The Historian's Craft*, trans. Peter Putnam (New York: Knopf, 1953), 175–176.

A historian researching some topic develops a unique conception of that topic, an understanding that is undoubtedly influenced by and draws upon the conceptions of her predecessors and colleagues, but which is nonetheless her own perspective. It is the development of these new perspectives and new meanings, and not simply the accumulation of new facts, that characterizes progress in history.[46] So there is another sense in which colligatory concepts can be "general": they can summarize resemblances among the concepts developed by historians. Such concepts are generalizations about history-as-portrait and not generalizations about history-as-past.

Frank Ankersmit contended that each individual historian who writes a narrative constructs a colligation so that, for example, there are as many "Renaissances" as there are narratives on the subject, since each narrative articulates a specific point of view.[47] So when we speak generally about the Renaissance we are really talking about a whole family or type of colligations which have been given the same name. Ankersmit claimed that when we define such types, we do so *extensionally* rather than *intensionally*. When one intensionally defines a type, one points to some necessary and sufficient conditions for belonging to the type. For example, one might intensionally define *mug* as "a type of cup made of glass or ceramic and having a handle large enough to accommodate a whole hand." To extensionally define a type, on the other hand, is to enumerate the members of a set of individuals considered to be instances of that type. An extensional definition of *mug* would collect all the world's individual coffee mugs and beer steins and so on and thereby declare "these are mugs."

Ankersmit speculated that one could extensionally define types of colligatory concepts by clustering texts that contain overlapping sets of statements. As a thought experiment, he proposed that one could construct a giant matrix. Along the matrix's horizontal axis one would align all the declarative statements made about the past that have actually appeared in some text or another. Along the vertical axis one would align all the colligatory concepts constructed by means of those statements. Each cell in the matrix would then be filled with a zero or a one indicating whether or not the corresponding statement was used to help construct the corresponding concept. Having constructed such a matrix, one could then try to identify types of colligatory concepts by grouping together rows with similar patterns of zeros and ones, in much the same way that one might identify types of drinking vessels by looking for similar shapes or handles or materials. Ankersmit posited that one would observe that "certain classificatory patterns automatically appear."[48] These clusters in "narrative space" would reflect the fact that historians write in response to other historians and construct their colligatory concepts by distinguishing them from those that came before (which implies a significant degree of overlap).

As Ankersmit pointed out, such an extensional procedure for identifying types can never be precise. There will be many possible groupings into types depending on how one interprets "similar patterns." Moreover, for any given interpretation of similarity, there will always be boundary cases that could belong to more than one cluster. At best, extensional typification can identify regularities in how we have chosen to conceptualize reality, but it cannot tell us anything about reality itself. In other words, looking at written history this way tells us something, not about the

46. Many historians and philosophers of history have made this point, but see in particular Mink, "The Autonomy of Historical Understanding"; Frank R. Ankersmit, *Narrative Logic: A Semantic Analysis of the Historian's Language* (The Hague: M. Nijhoff, 1983), 227–247; and Paul Veyne, *Writing History: Essay on Epistemology*, trans. Mina Moore-Rinvolucri (Middletown, Connecticut: Wesleyan University Press, 1984), 213–235.

47. Ankersmit, *Narrative Logic*, 99.

48. Ibid., 158.

reality of the past, but about the contours of the concepts developed by historians over time. *The Renaissance*, *feudalism*, and *medieval Ireland* are not objectively existing entities in the past but names of types of stories we tell to understand the past.

Finally, Ankersmit argued that types of colligatory concepts can *only* be identified extensionally. The alternative would be to intensionally identify types in terms of logical definitions based on attributes of the things being classified, the way the type *mammal* is defined as "warm-blooded," "vertebrate," and "having hair or fur." But this is precisely what one cannot do for types of colligatory concepts. There is no logical definition, no core set of properties both necessary and sufficient for making a particular narrative a narrative about the French Revolution. While it's easy to identify statements that would *not* appear in any narrative of the French Revolution—for example that the storming of the Bastille occurred in 1967 in Tokyo, Japan—one cannot identify statements that *must* appear in such stories or by virtue of which one *must* consider a given narrative to be a narrative about the French Revolution. Given all the narratives that have ever been written about the French Revolution, one may not be able to identify a single statement that appears in every one. Thus one cannot intensionally identify types of colligatory concepts. Decisions about what the French Revolution is can only be justified pragmatically, not logically.

To summarize, a colligatory concept is a specific understanding developed by a historian. A historian never develops this understanding "from scratch" or "discovers" it in the archives. Instead he produces it by transforming inherited ideas, which may be concepts taken for granted in his culture or concepts developed by his peers and predecessors. As Oakeshott put it:

> History ... begins not with the collection of isolated particles of data, nor with a universal doubt, nor with a blank and empty consciousness, but with a homogeneous world of ideas. No other starting place is to be found, none other is possible ... The process in historical thinking is never a process of incorporation; it is always a process by which a given world of ideas is transformed into a world that is more of a [coherent] world.[49]

The historian presents his colligatory concepts through a written narrative or some comparable historical product, which I have called history-as-portrait. He does not first develop his concepts and then present them; the presentation is part of the development. Moreover, the historian develops his concepts partly in response to the concepts presented by other historians who produced portraits of the same subject. As Ankersmit argued, this is what makes it possible to typify colligatory concepts.

Types of colligatory concepts can be defined at different levels of specificity. At the most specific level are the kinds of types discussed above, types inferred from similar patterns of statements found in texts. At a broader level, types of colligatory concepts can be distinguished based on the kind of role they play in historical reasoning. In the following sections I distinguish and discuss three of these broader types: *characters*, *ideal types*, and *periods*.

Characters

Walsh explained the role of characters in history as follows: "In every history there is a continuing subject in whose fortunes the historian and his readers are interested, and there are successive

49. Oakeshott, *Experience and Its Modes*, 98-99.

situations, as it were modes of that [subject], which it is the historian's business to depict and explain."[50] These "continuing subjects" are the characters of history, and without them there can be no history. Characters fill the role of agents in the semantics of action that historical understanding presupposes.

I am asserting that characters are a kind of concept constructed by historians. When one thinks of the characters of history, one usually thinks of individual people, such as Napoleon or Rosa Parks. It may seem odd to assert that *Rosa Parks* is a concept. Wasn't Rosa Parks a real person? Am I suggesting that historians invented Rosa Parks? It is a confusion between history-as-past and history-as-portrait that leads to this seeming strangeness. Of course Rosa Parks was a person. But *Rosa Parks* is also a character in histories of the civil rights movement. One should not confuse the representation developed by historians with the Rosa Parks who lived and breathed. The unity and continuity of actual people is guaranteed by their bodily existence, but historians may use other criteria for the continuity of their characters. Hjørland gave the example of Ludwig Wittgenstein. Philosophers and biographers often distinguish *early Wittgenstein* and *late Wittgenstein* as separate concepts due to the fundamental change in his thinking that occurred during his lifetime.[51] This is a case where one actual person has been separated into two characters, using the intellectual content of that person's work, rather than the physical continuity of the person's body, as the criteria for continuity.

Another example is Saint Patrick, the missionary who brought Christianity to Ireland. Patrick is a subject of early Irish history and plays an important role in popular historical discourse as well. But it has been argued that there were actually two living persons represented by the historical character *Saint Patrick*.[52] If so, then this would be a case in which two actual people have been combined into one character. Whether or not this is actually the case, the fact that such an argument is meaningful at all illustrates the distinction between people in the past and characters as subjects in portraits of the past.[53]

Individuals are the prototypical characters. It is our experience of living in the world with other individuals, observing their actions, attributing to them motivations, and so on that gives us the competence to understand historical representation. But characters need not be individuals. In written history, anything that serves as the subject of an active or passive verb can be a character.[54] Typical examples include communities, nations, classes, races, and institutions. But characters can be more exotic than these: in his analysis of Fernand Braudel's *The Mediterranean and the Mediterranean World in in the Age of Philip II*, Ricœur identified *the Mediterranean* as the

50. Rolf Gruner and W. H. Walsh, "Symposium: The Notion of an Historical Event," *Proceedings of the Aristotelian Society, Supplementary Volumes* 43 (1969): 153, http://www.jstor.org/stable/4106614.

51. Hjørland, "Concept theory," 1522.

52. Thomas O'Rahilly, *The Two Patricks : A Lecture on the History of Christianity in Fifth-Century Ireland* (Dublin: Dublin Institute for Advanced Studies, 1942).

53. I am *not* saying that historians write about *concepts* rather than about people. A biographer of Wittgenstein is writing about Wittgenstein, not about the concept *Wittgenstein*. Patrick Wilson, *Two Kinds of Power: An Essay on Bibliographical Control* (Berkeley: University of California Press, 1968), 66n7. In contrast, I *am* writing about the concept *Wittgenstein*. I am arguing that the biographer of Wittgenstein, in writing about Wittgenstein, is constructing a particular concept *Wittgenstein*. One ought not confuse the subject being written about with the concept of that subject thereby constructed. In other words, one should not confuse that which is represented with the representation.

54. Ricœur, *Time and Narrative*, 197.

"collective hero on the stage of world history".[55] What justifies treating the Mediterranean as a character? Surely one cannot observe the Mediterranean's actions and attribute motivations to it, as one might do with a person.

Dray argued that to treat the Mediterranean as a character is simply a kind of ellipsis, a shorthand for referring to people. He identified two kinds of ellipsis. In the first, a collective concept stands in for some individual or individuals acting on behalf of that collective. So when a historian writes, "The United States feared an Iraqi nuclear attack and thus decided to launch a preemptive war," she is really using *the United States* to refer to an unspecified group of political and military leaders authorized to make decisions on behalf of the United States. The second kind of ellipsis occurs when a historian treats individuals belonging to some group as interchangeable for the purposes of his analysis. For example, a historian might write, "The Jewish people refused to worship the Roman emperor." In this case, the historian is not referring to some individuals acting on behalf of the Jewish people, but is instead referring to *any* typical individual within that group.[56]

Dray's argument is not entirely convincing, however. It does not seem to be the case that historians are always indirectly referring to individuals in this way when they employ collective characters. Paul Veyne gave the example of a historian studying Nivernais peasants. When such a historian makes assertions about the *the Nivernais peasant*, she is not indirectly referring to some typical member or members of that group. Instead she is abstracting from individuals some specific features such as marriage customs and economic activity, and then bringing together those abstract features into a new concept, *the Nivernais peasant*. The concept is this fusion of abstractions, not an indirect reference to individuals.[57]

Dray wished to show that any character can be reduced to individual people. Presumably he was motivated by a desire to avoid treating collectives such as nations or religious communities as "real" in the same sense that individual human beings are real. If so, that desire is misconceived. As I have argued above, historians construct individual characters in history, so why shouldn't they construct collective characters? It is true we do not usually experience collectives in the same way we experience individual human beings, but individuals *as characters* are no more substantive than collectives as characters.[58] The question regarding collective characters is not whether one can reduce them to something "real," but how one can come to understand these collectives as having unity and continuity in the absence of bodily existence.

Ricœur explained how collectives are understood as plausible characters using Maurice Mandelbaum's definition of *society* as an example:

> A *society* ... consists of individuals living in an organized community that controls a particular territory; the organization of such a community is provided by institutions that serve to define the status occupied by different individuals and ascribe to them the roles they are expected to play in perpetuating the continuing existence of the community.[59]

55. Ricœur, *Time and Narrative*, 215.
56. Dray, *Laws and Explanation in History*, 140–141.
57. Veyne, *Writing History*, 60–61.
58. We do not usually directly experience encounters with a collective, except perhaps in certain cases such as angry mobs.
59. Maurice Mandelbaum, *The Anatomy of Historical Knowledge* (Baltimore: Johns Hopkins University Press, 1977), 11, quoted in Ricœur, *Time and Narrative*, 195.

Ricœur argued that this definition provides three separate criteria of unity and continuity. First, there is contiguous space, the "particular territory" inhabited by individuals. Second, there is some institutional structure that unifies these individuals and defines the roles they play in that unity. Third, the territory is occupied and the roles are played continuously over time. These three criteria rely upon individuals, but cannot be reduced to them, as no particular individual or individuals taken in isolation can be said to have occupied that territory, taken on those roles, or existed over that time. Thus the society as collective character depends upon individuals but is not shorthand for referring to some particular individuals.[60]

Characters are what Ricœur referred to as "first-order" entities in history. Characters are subjects of change, the identity of which is provided by their temporal and spatial continuity. By abstracting from these first-order entities, historians derive "second-order" entities, which I discuss in the following section as *ideal types*.

Ideal Types

While characters are defined to have a continuous existence localized in time and space, *ideal types* are discontinuous entities abstracted away from specific times and places. Historians borrow many ideal types from the social sciences. Ideal types are also the subjects of what Mandelbaum called "special histories," for example histories of French literature, or of Gothic architecture, or of chemistry.[61] In order to write such a history, a historian must develop a concept of *chemistry* or of *French literature* that can be postulated as the subject of change. This subject may not be (and in the case of ideal types is usually not) continuous in space and time. In this case the continuous identity of the subject of change is constructed by the historian from some discontinuous series of things. In the case of *chemistry*, these things might be scientific discoveries, while in the case of *French literature* they are likely to be literary works.

The term *ideal type* was was coined by Max Weber. Weber defined the ideal type as a purely theoretical construct that is used to analyze concrete historical things.[62] The historian selects and emphasizes certain features or aspects of some set of things and combines these aspects into an idealized concept, the ideal type. He can then analyze specific things by comparing those things with the ideal type. The ideal type isn't something that can be observed or discovered. Nor is it an abstract class of which instances can be identified, or a simple summarization of common features of some set of things. It is a heuristic device constructed to enable analysis by focusing attention of certain aspects of reality and seeing how the construct fails to capture that reality.

Weber used *capitalism* as a typical example of an ideal type.[63] Historians and social scientists have developed many different concepts of capitalism. Each concept integrates certain observed features of economic activity, and none of them accord with any actually existing economic system without discrepancy. Yet each claims to capture the "nature" or "essence" or "basic idea" of capitalism. Each does so, but only from a specific perspective, the particular perspective that led to the selection of certain features as significant. Thus there can be as many ideal types named "capitalism" as there are ways of being concerned with economic activity.

60. Ibid., 195–196.
61. Mandelbaum, *The Anatomy of Historical Knowledge*, 33–35.
62. Max Weber, "'Objectivity' in Social Science and Social Policy," in *The Methodology of the Social Sciences*, ed. and trans. Edward A. Shils and Henry A. Finch (Glencoe, Illinois: The Free Press, 1949), 90.
63. Ibid., 91.

In his discussion of ideal types, Weber accentuated the effort to construct rigorous and precise analytical concepts with which to examine reality. This effort is characteristic of the social sciences, and of history to the extent that it borrows these concepts from the social sciences and uses and develops them in a rigorous manner. But ideal types are not always used so analytically in historical practice. Marrou noted that when historians use ideal types, they often do so as a kind of convenient shorthand for describing some ensemble of facts.[64] Both Marrou and Weber, however, warned against making the mistake of believing that ideal types exist in reality. Ideal types, like other kinds of colligatory concepts, are produced through historical reasoning and discourse. They are not structures underlying history-as-past or forces which history-as-portrait must accommodate.[65]

Periods

The third category of colligatory concept is the *period*. The French Revolution and the Renaissance are canonical examples of periods. A period, like a character and unlike an ideal type, is localized in time and space. But where the unity and identity of a character is provided by its continuity through that time and space, a period is discontinuous over space and time.

Danto illustrated this using the example of the French Revolution. One can understand the *the French Revolution* as designating something that *the French people*—a character—were engaged in during some span of time around 1789. In addition to or in place of *the French people* one might choose other characters: individuals like *Louis XVI* or *Robespierre*. Our choice of characters will help determine the structure of the period, and in this sense periods are derived from and depend upon characters. Most of our characters will be located in France, but some may not be. Our characters will also, during the time in question, engage in activities that may not be considered part of the Revolution. As a result, *the French Revolution* is "exhibited discontinuously over French soil and eighteenth-century time."[66] The unity and identity of a period is provided not by its continuity but by the historian's narrative.

Where ideal types are analytic constructs, periods are synthetic constructs.[67] Ideal types select and emphasize specific aspects of reality such as economic activity or familial structure, while periods encompass "the totality of all that we are able to know of the object thus defined."[68] Periods are totalities that include or depend upon both ideal types and characters. Being constructed out of these other colligatory concepts, periods are the most abstract of concepts, despite seeming to be somewhat concrete given their localization in space and time.

Periods are the prototypical colligatory concepts: most theorists of historical colligation seem to have had periods foremost in mind. Yet to properly understand periods they must be distinguished as one specific kind of colligatory concept, dependent upon but distinct from characters and ideal types. The purpose of this chapter has been to place periods in the larger context of history as a process of conceptualization. The remainder of this dissertation will focus on periods and the problems of how to represent them in formal systems of knowledge organization.

64. Marrou, *The Meaning of History*, 172–173.
65. Weber, "'Objectivity' in Social Science and Social Policy," 94.
66. Danto, *Narration and Knowledge*, 166.
67. Ricœur, *Time and Narrative*, 206.
68. Marrou, *The Meaning of History*, 174.

Chapter 3

History and Knowledge Organization

> "An old book is the past, too," said Archimboldi, "a book written and published in 1789 is the past, its author no longer exists, neither does its printer or the one who read it first or the time when it was written, but the book, the first edition of that book, is still here. Like the pyramids of the Aztecs," said Archimboldi.
>
> Roberto Bolaño, *2666*

History-as-practice is closely related to and intertwined with the organization of recorded knowledge (henceforth referred to simply as *knowledge organization*). Most obviously, history-as-practice supports and is supported by the traditional collecting institutions: archives, museums and libraries. Less obviously, history-as-practice is itself in part a process of organizing knowledge. There is a spectrum of knowledge organization, with no clear boundaries between the practices of archivists, curators, and librarians on the one end, and history scholars on the other. This spectrum is history-as-practice in the broad sense given in chapter 2.

As I argued in section 2.1 history-as-practice can be partially viewed as a set of procedures for conceptualization. These procedures overlap with the conceptualization involved in knowledge organization. Knowledge organizers develop artificial languages for describing documents and create formal systems for naming, describing and relating concepts. These activities pose problems of conceptualization similar to those faced by history scholars. Endeavors like producing documentary editions and designing exhibits of historical documents further blur the distinction between knowledge organization and history scholarship. Networked, digital knowledge organization systems offer opportunities for making these overlaps more explicit and taking advantage of them to build collaborative infrastructure for history-as-practice in the broad sense.

But while information technology may make the overlap between history and knowledge organization more obvious, the overlap is not a *product* of information technology. Some scholars have suggested that historians' embrace of information technology and quantitative methods will lead to a "historical information science." Lawrence McCrank claimed that a historical information science

> would aim at the extraction of information from historical sources and construction of knowledge scientifically, coupled with an objectivity about assumptions and interpretation; tested methods that are repeatable, whose results are verifiable, and

> where interpretation is accountable; theory-building beyond case study, description, and narration; collaborative, strategic approaches more common in business and engineering than in the traditional arts; and a renewed focus on evidence.[1]

This is simply another attempt to redefine history as an immature science, with information technology designated as the means by which it will finally reach maturity. But history is not a science, much less an "information science." Historians do not "extract" information from sources; their methods are neither repeatable nor verifiable in the scientific sense. I do not intend to treat history as a science when I claim that history is a form of knowledge organization, but rather to reject the idea that knowledge organization is reducible to a science. The idea that knowledge organization is a branch of "information science" is rooted in the same kinds of misconceptions that lead to claims that history is or could be a science. History is a form of knowledge organization, but history is not a science, and so knowledge organization is something broader than just the scientific organization of knowledge.

Boonstra, Breure and Doorn more narrowly define historical information science as "the discipline that deals with specific information problems in historical research and in the sources that are used for historical research, and tries to solve these information problems in a generic way with the help of computing tools."[2] This definition is more acceptable, as it does not cast history as a kind of science. But by focusing solely on the use of computing tools, this definition misses the deeper connection between history and knowledge organization as procedures of conceptualization. In this chapter I argue that this connection exists regardless of whether computing tools are used, although it has implications for the design of computing tools to support the production of and access to historical research.

3.1 History and Collecting Institutions

History-as-practice is clearly dependent upon the organization, management and use of documents. Maintainers of document collections identify, authenticate, organize, describe, and preserve survivals from the past that historians use as primary sources. One kind of document collection is an archive, a collection of documents that organizations such as corporations, governments and religious institutions created and used to conduct their business. Archives may also be collections of documents generated or used by a family or a single individual. Usually the documents in archives are textual materials like letters, memos, invoices, notes and so on. But archives are not limited to textual materials. For example, the Allen Ginsberg Papers at Stanford University includes "a pair of tennis shoes bought and worn by Ginsberg during his trek across Eastern Europe which he saved to demonstrate the poor quality of workmanship in the communist countries at the time."[3] Nor are archives limited to analog materials. Since the advent of computer use, a growing portion of archives' contents are "born digital" documents such as digital files and software.

1. Lawrence J. McCrank, *Historical Information Science: An Emerging Unidiscipline* (Medford, New Jersey: Information Today, 2002), 21.

2. Onno Boonstra, Leen Breure, and Peter Doorn, *Past, Present and Future of Historical Information Science* (Amsterdam: Royal Netherlands Academy of Arts and Sciences, 2006), 20.

3. Online Archive of California, "Guide to the Allen Ginsberg Papers," scope and content note for series 15 (memorabilia), `http://www.oac.cdlib.org/view?docId=tf5c6004hb;query=tennis+shoes;dsc.position=37501;style=oac4;view=dsc#c01-1.3.9.16`.

Archivists must describe the contents of archives in order to know what they have and to make it accessible to others. Because archives consist of whole collections of documents generated and used by an individual, family or organization, the unity and arrangement of the whole collection as it was generated by its creator is often more important than the individual documents. Thus while archivists make some attempt to identify the individual items in the archive, much of their descriptive activity is at the level of the whole collection rather than at the level of the individual items. The result of this descriptive activity is the archival "finding aid," which provides an inventory of the archive's contents and helps guide users to the particular documents or series of documents in which they may be interested.

An individual document in an archive may only make sense in the context of the organization of the collection as a whole. Ginsberg's tennis shoes provide an excellent example. A description focused solely on the physical characteristics of the shoes is not enough. Without any context to explain why the they have been saved, the shoes might strike one as funny.[4] For the shoes to make sense, one must understand the archive's origin in Ginsberg's attempt to document every aspect of his own life, which he saw as a microcosm of the "spiritual war for the liberation of speech and spirits in America."[5] In particular, one must know that Ginsberg hiked across Eastern Europe, that Eastern Europe was under Communist governments at that time, and that Ginsberg saved the shoes as a reminder of the poor quality of manufactured goods in Communist countries. It might be even more enlightening to know something about the role of Communist ideas in the "spiritual war" taking place in America at that time and Ginsberg's ambivalent association with those ideas.

Archivists try to provide at least some of this kind of context by describing the origins of a collection, giving some background knowledge about its creator, explaining the organization of the collection and why it was originally organized that way, outlining the subject matter of the documents where appropriate, and discussing the other people, organizations, places and events related to or involved in the creation or use of the documents. To do this, archivists must study and interpret the documents, not only to understand them in isolation, but also to understand their connection to what was going on in the world at the time of their creation and use. Thus archivists, like history scholars, consider evidence, derive facts, make inferences and present their understanding under synthesizing concepts. The archivist's finding aid is a history-as-portrait just as much as a historical monograph or documentary is.[6]

What I've written about archives also applies to any museum that stores and preserves and presents bits of surviving material culture or, as in the case of historical sites and buildings, is itself part of that material culture. The artifacts at a historical museum, unlike archival records, may not have been acquired as a pre-existing collection with its own organization. But some historical museums function like "archives of objects," supporting history scholarship by organizing, preserving and providing access to artifacts. For example, the Phoebe A. Hearst Museum of Anthropology at the University of California, Berkeley has collected and cataloged over 3.8 million objects, only

4. Indeed, many articles that appeared in the press when Stanford acquired the Ginsberg archive in 1994 mentioned the old tennis shoes as a humorous lead, without providing any contextual explanation. See for example David Margolick, "An Unlikely Home for Ginsberg's Archive," *New York Times*, September 20, 1994, `http://www.nytimes.com/books/01/04/08/specials/ginsberg-archive.html`.

5. Stanford University News Service, "Ginsberg Accuses Neo-conservatives of Political Correctness," February 14, 1995, `http://news.stanford.edu/pr/95/950214Arc5375.html`.

6. Berkhofer, Jr., *Fashioning History*, 97–98.

a tiny fraction of which have ever been or will be exhibited.[7] In theory, research museums of this kind catalog their collections to the extent necessary for researchers to find the artifacts they need. In practice they usually do not, both for economic reasons and because they cannot fully anticipate future researchers' needs.

In comparison to archives and museums, libraries are less closely associated with history-as-practice. Some kinds or parts of libraries, such as special collections of rare books or manuscripts, are similar to museums. And research libraries can be viewed as archives for research organizations.[8] But for the most part libraries are interested in organizing and providing access to documents not because of the documents' status as survivals from the past but because of the content of those documents. Thus libraries are not principally used by historians to find primary sources—though they may often be found there—but are *the* place for finding prior colligations, and thus are invaluable for helping historians develop an initial understanding of their subject and the questions they want to ask:

> The exploration of the "bibliography" of any subject being studied is closely connected with the search for sources. When we undertake a historical work we must read whatever has already been written on the same subject, or on related matters—and in a general way the whole field of interest.[9]

Libraries are important to history-as-practice because they store for histories-as-portrait, most obviously works like historical monographs, but also historical documentary films and newer forms of media for presenting historical portraits such as CD-ROMs and video games. Historians may be familiar with what is presently being said about their subject of choice—recently reviewed books, current controversies, and so on—but beyond this they need libraries to become acquainted with whatever has already been said.

3.2 Describing Documents

Archives, libraries and museums provide access to documents, and a crucial part of that role is providing descriptions to enable identification and selection of the most suitable documents.[10] This is the core function of knowledge organization.

Traditionally the field of knowledge organization has been concerned with the construction of bibliographical instruments. A bibliographical instrument is anything that can be used to find texts matching some description or to find texts that could be used to achieve some goal.[11] Bibliographical instruments include library catalogs, specialized bibliographies, manuscript inventories, archival finding aids, guides to literature, periodical indexes, and so on. All these instruments

7. Phoebe A. Hearst Museum of Anthropology, `http://hearstmuseum.berkeley.edu/`.

8. W. Boyd Rayward, "Electronic Information and the Functional Integration of Libraries, Museums, and Archives," in *History and Electronic Artefacts*, ed. Edward Higgs (Oxford: Oxford University Press, 1998), chap. 14.

9. Marrou, *The Meaning of History*, 78.

10. I consider museum objects to be "documents" in the broad sense. Michael K. Buckland, "What Is a 'Document'?" *Journal of the American Society for Information Science* 48, no. 9 (1997): 804–809, doi:`10.1002/(SICI)1097-4571(199709)48:9<804::AID-ASI5>3.0.CO;2-V`, `http://doi.wiley.com/10.1002/%28SICI%291097-4571%28199709%2948%3A9%3C804%3A%3AAID-ASI5%3E3.0.CO%3B2-V`.

11. Wilson, *Two Kinds of Power*.

list texts or locations within texts and group the lists under names or descriptions. The user of a bibliographical instrument looks for names or descriptions that match her understanding of her interests and sees what is listed there. In this way she selects some text or part of a text or set of texts from the wider universe of everything that has been written.

Specific kinds of bibliographical instruments, such as catalogs and indexes, differ mainly in the size of the unit being described and the richness of description. A cataloger describes and enables the selection of whole documents, which are usually defined as published units. An indexer describes and enables the selection of individual passages or statements within textual documents.

However, there is no need to restrict such description and selection to texts. More generally, users are interested in finding *documents*, which in addition to texts like books or letters may include things like potshards, films, or video games.[12] The potential universe of documents is larger than the bibliographic universe, so instead of bibliographic instruments it is better to think in terms of selection systems.[13] Selection systems include traditional bibliographic instruments but also information storage and retrieval systems that encompass all kinds of documents beyond texts: Web search engines, museum catalogs, stock photography databases. Selection systems also include systems that do not store documents but instead filter documents being published or sent to some channel, such as a news subscription feed or an email account.

Any selection system requires that documents be represented in some way. Approaches to representing documents for the purposes of selection vary as widely as selection systems do. But in general, document representations can be derived from two sources: the documents themselves and existing bodies of knowledge.[14] Representations derived from the documents themselves are copies or transformations of the document. For example, a full-text book search engine may represent a book using the complete text taken directly from the book itself, while a digital stock photography repository may represent photographs using color histograms calculated from the pixels of the digital images. Representations created based on external knowledge go beyond what can be taken directly from or automatically generated from the documents themselves. These include expository descriptions written by an expert bibliographer or curator, or descriptive terms selected from a controlled vocabulary.

Expository descriptions of documents are created using a natural language such as English. But document representations can also be created using artificial languages, languages that have been developed specifically to facilitate selection. This kind of artificial language has been called a *documentary* language.[15]

12. Buckland, "What Is a 'Document'?"

13. Michael Buckland and Christian Plaunt, "On the Construction of Selection Systems," *Library Hi Tech* 12, no. 4 (1994): 15–28.

14. Ibid.

15. Terminology and definitions vary. Svenonius calls these artificial languages *bibliographic* languages, reflecting her preoccupation with books, and subdivides bibliographic languages into *document* languages used to create descriptions of individual documents and *work* languages used to create descriptions of works. She further subdivides work languages into those used to describe the particulars of publishing a work (author, title and edition) and those used to describe content of a work. Elaine Svenonius, *The Intellectual Foundation of Information Organization* (Cambridge, Massachusetts: The MIT Press, 2000). Petras similarly uses the term *bibliographic language*, but leaves aside the problems of identifying works and only distinguishes two subdivisions: *formal* bibliographic languages used to create descriptions of the physical features or publishing details of documents, and *documentary* languages used to describe the content of documents. Vivien Petras, "Translating Dialects in Search: Mapping between Specialized Languages of Discourse and Documentary Languages" (PhD diss., University of California, Berkeley, 2006), chap.

Documentary languages, like natural languages, have a vocabulary, syntax and semantics.[16] The vocabulary of a documentary language consist of terms. The meaning of a term in a documentary language, unlike the meaning of a word or phrase in a natural language, is intended to be context-independent. Each term refers to only one concept and every concept is designated by only one term. Terms can be combined to create more complex descriptions. The rules governing how terms may be combined are the syntax of a documentary language. Such rules are needed to distinguish between, for example, *history of philosophy* and *philosophy of history* as subjects. Both subjects involve the concepts *history* and *philosophy*, but the first concerns the historical study of the development of philosophy, while the latter concerns philosophical inquiry into the nature of history. Syntactic rules do not refer to individual terms, but prescribe how members of classes of terms may be combined. In addition to classes, a documentary language may enumerate some set of predicates for creating relations among terms. Syntactic rules govern which classes of terms can be related using specific predicates or kinds of predicates. The classes and predicates of a documentary language encode its semantics.

A documentary language implicitly specifies a set of positions in an abstract "space" of knowledge.[17] A document is assigned to a position by first constructing a description using the documentary language (thus specifying a position) and then using that description to represent a document (thus assigning it to the specified position). A well-designed documentary language aids selection by making it easy to find at the same abstract position documents that are similar in some respect. The documentary language can be viewed as a kind of scaffolding that enables rapid access to specific positions in documentary space.[18]

3.3 Describing Concepts

Knowledge organizers create descriptions by using a documentary language consist to encode relationships between documents and concepts (denoted by the terms of the language). When the relationship is one of "aboutness", the related concept is called a *subject*, and the description is a description of the document's *content*. But the relationship between a document and a concept need not be so strong as "aboutness" to justify its encoding. A knowledge organizer may create a description relating a document and a concept anytime she decides that knowing more about the concept (beyond what the document itself provides) would help a potential user better understand the document. In this more general sense, the description created is a description of the document's *context*, and the related concept—which we might call a *contextual entity*—is part of that context.[19] A subject or contextual entity is "anything whatsoever, regardless of whether it ex-

4. But such distinctions break down as one moves beyond books and other formally published texts into the wider universe of documents, and as descriptions become richer. What is the content of a museum artifact? Is the biographical description of a manuscript's author still the domain of a formal bibliographic language? Rather than worrying about such issues I use the term *documentary language* in a broad sense to encompass any artificial language used to systematically describe and represent documents.

16. Svenonius, *The Intellectual Foundation of Information Organization*, 128–132.

17. Wilson, *Two Kinds of Power*, 62.

18. Michael Buckland, "Description and Search: Metadata as Infrastructure," *Brazilian Journal of Information Science* 0, no. 0 (2006), `http://www.portalppgci.marilia.unesp.br/bjis/`.

19. Christopher A. Lee, *Taking Context Seriously: A Framework for Contextual Information in Digital Collections* (Chapel Hill, North Carolina: University of North Carolina School of Information and Library Science, 2007),

ists or has any other specific characteristics, about which anything whatsoever may be asserted by any means whatsoever."[20] It is, as Wilson put it, a "thing ... in its emptiest sense."[21]

While the scaffolding provided by a documentary language is useful for finding and selecting documents, it can also be useful by itself, as a tool for learning more about subjects and contextual entities. Considered independently of some corpus of documents, it is no longer just scaffolding but a kind of map of ideas in some domain. This kind of map is what Hjørland calls a *semantic tool*.[22] A good semantic tool informs its users about concepts of interest in some domain, various names or terms associated with those concepts, and relationships among concepts.

An example of a semantic tool that bridges the description of documents and the description and mapping of concepts is an *authority file*. As discussed above, a documentary language is designed so that each term in its vocabulary is associated with a single concept, and each concept in its domain of discourse has a unique identifier or a single preferred term. The documentary language *authorizes* the unique identifier or single preferred term for use in referring to its associated concept. By authorizing a certain term to be used to refer to a concept, designers of documentary languages are excluding other natural language terms that may be used to refer to that concept. These other terms or *variant terms* are usually listed with the unique identifier or preferred term, so that users of the language can find the authorized term by looking it up or being redirected via some variant term they may have in mind.[23] The aggregation of variant terms and an authorized term for a particular concept is called an *authority record*. An indexed set of authority records constitute an authority file, or simply an *authority*. The discipline an authority file imposes on the use of terms is known as *authority control*.

While the original purpose of authority records was to map from natural language terms to authorized terms, they have also proved to be convenient places to record additional information about concepts. For example, a Library of Congress name authority record, which specifies the authorized term (name) and variant terms (other names or forms of names) of a person, usually also includes information about the birth date and (if applicable) death date of that person. Sometimes this information is embedded in the authorized term, as for example in the authorized term *Goldman, Emma, 1869-1940*. In other cases it can be found in free-text notes added to the record; for example the authority record for Barack Obama gives his birthdate, birthplace, and the names and nationalities of his parents, citing as sources a children's biography of Obama and the July 21, 2008 version of the Wikipedia article about him.

This kind of information describes the concept associated with the authority record by listing attributes of the concept. The specific attributes listed will depend on the type of concept being described. An authority record for a person might include his or her gender, nationality, occupations held, selected publications, and so on. An authority record for a place could include

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http://sils.unc.edu/research/publications/reports/TR_2007_04.pdf.

20. *ISO/IEC IS 13250-2:2006: Information Technology—Document Description and Processing Languages—Topic Maps—Data Model* (Geneva, Switzerland: International Organization for Standardization, 2006), 8, http://www.isotopicmaps.org/sam/sam-model/.

21. Wilson, *Two Kinds of Power*, 65.

22. Birger Hjørland, "Semantics and Knowledge Organization," *Annual Review of Information Science and Technology* 41 (2007): 367–405, doi:10.1002/aris.2007.1440410115, http://doi.wiley.com/10.1002/aris.2007.1440410115.

23. In practice, this mapping from users' vocabulary to the vocabulary of a documentary language is a complicated problem that needs more sophisticated treatment than simply listing variant terms under their authorized term. Petras, "Translating Dialects in Search."

geographical coordinates or boundary shapes. Authority records can also describe concepts by relating them to other concepts via references or links to other authority records. So an authority record for a person could be linked to the authority record for a group of which that person was a member, or to the authority record for a place where that person lived. Whether a piece of descriptive information about a concept is treated as an attribute of that concept or as a relation to second concept will depend upon whether there is an authority record for the second concept and upon design decisions made by the authority control systems's designers.

In practice, the largest and most widely used authority control systems specify far fewer descriptive attributes and relations than they could. In the example above, we see that the authority record for Barack Obama mentions the names of his parents. That record could have also contained references or links to the name authority records for his parents. Dick Miller justifiably complained that

> current systems provide limited fragments of what would be possible if a more comprehensive and integrated approach were used ... a researcher interested in events occurring at the same time, concepts that emerged at that time, names of people, places or organizations that were contemporaneous, objects made at the time, etc., would face a myriad of disparate resources not likely to ease the process of understanding the whole.[24]

Miller envisioned a system of integrated authority files that would enable users to find at a single location a comprehensive list of concepts with shared attributes. A comprehensive approach to linking authority records would require many changes to the way authority control has traditionally been done. For example, authority control systems such as the Library of Congress authority files have traditionally distinguished *subjects* as a separate kind of concept from people, organizations or places. However, being a "subject" is not an inherent attribute of a concept but a relationship that exists between some document and that concept.[25] Something is a subject or contextual concept for some document based on whether that document is interpreted as being about or illuminated by that concept. To treat subjects or contextual entities as kinds of concepts, rather than as kinds of relationships between concepts and documents, introduces artificial distinctions that hinder comprehensive approaches to linking concepts. Abstracting away from the particulars of current authority control systems, authority files ideally describe concepts and the relationships between concepts, any of which may be a subject of or provide context for some document.

To describe a document as being about some subject or related to some contextual entity, the knowledge organizer must know something about the larger discourses and patterns of discourse of which that document is a part. For example, two texts may employ the same vocabulary but to different ends, because their authors were participating in different discourses. Two artworks may

24. Dick Miller, "XOBIS—An Experimental Schema for Unifying Bibliographic and Authority Records," *Cataloging & Classification Quarterly* 39, no. 3 (2005): 286, doi:10.1300/J104v39n03_18, http://www.informaworld.com/10.1300/J104v39n03_18.

25. Stefano Tartaglia, "Authority Control and Subject Indexing Languages," *Cataloging & Classification Quarterly* 39, no. 1 (2004): 365–377, doi:10.1300/J104v39n01_05, http://www.informaworld.com/10.1300/J104v39n01_05.

employ the same visual figure, but it may symbolize very different things in each.[26] To properly describe the content or context of such documents, the knowledge organizer must have some understanding of an inferred past outside of the documents themselves. Specifically, she must know something about a document's "ancestors": the documents that influenced its creator and upon which its meaning depends. In a sense, then, classifiers of documents must classify not individual documents but sets of documents that constitute historical sequences.[27] A semantic tool like a subject classification can be viewed as a kind of history-as-portrait of some domain of cultural or intellectual development.

In fact the classifier faces problems quite similar to those faced by the history scholar. In chapter 2 I discussed the problem of conflating an inferred history-as-past with history-as-portrait. The past existed, but it did not exist in the form of events and chains of events, which are features of our discourse about the past. Likewise, classifiers should be careful not to reify topics, which are features of our discourse about patterns of discourse. Robert Fairthorne warned about

> the implicit conceptual background of classificatory acting ... a background of belief in a landscape of topics, to which books and other recorded discourse can be assigned, and the belief that this landscape is unique, independent of classifiers, and can be described in as much detail as you like by an appropriately omniscient and omnipotent observer.[28]

Subjects, like events, are not objectively existing things to be "discovered" through the systematic application of scientific methods. To construct an instrument for mapping subjects and their relations and classifying documents under subjects necessarily involves setting forth a particular point of view.[29]

But "point of view" can be a misleading phrase if taken too literally. In physical reality, one can combine many points of view from various perspectives to obtain a more complete view of something. But neither knowledge structures nor historical narratives can be combined this way. Veyne, writing not about the problem of bibliographical classification but about the problem of historical classification, provided an example that illustrates both problems. There were in ancient Roman society a whole set of "gift-giving" practices including

> bread and circuses, distribution of land to veterans, New Years' presents, "gifts" from the emperor to his officials, baksheesh [bribery] raised to the rank of an institution, wills by which a man's goods are distributed to his friends and his servants,

26. The swastika is a famous example. The swastika is an ancient symbol widely used in Hindu and Buddhist art. In Japan, the swastika is used on maps to identify Buddhist temples, much as crosses are used to identify churches. In the west, however, the symbol's association with Nazism has eclipsed its original meaning.

27. Robert A. Fairthorne, "Temporal Structure in Bibliographical Classification," in *Conceptual Basis of the Classification of Knowledge: Proceedings of the Ottawa Conference on the Conceptual Basis of the Classification of Knowledge, October 1st to 5th, 1971*, ed. Jerzy A. Wojciechowski (Munich: Verlag Dokumentation, 1974), 404–412.

28. Ibid., 404.

29. Melanie Feinberg made a convincing argument that designers of knowledge organization systems need to be more cognizant of the fact that their representations of knowledge structures are "actively designed interpretations of reality" that ought to be more clearly defined and justified. Melanie Feinberg, "Hidden Bias to Responsible Bias: An Approach to Information Systems based on Haraway's Situated Knowledges," *Information Research* 12, no. 4 (2007), http://informationr.net/ir/12-4/colis07.html.

> banquets to which the whole town is invited, patronage of the leading citizens who make up the ruling class.[30]

These practices can be understood in various ways: as gift-giving, as public welfare, as patriotic duty, as aristocratic status-seeking, as economic rationality, and so on. Each way of understanding groups some subset of these practices under a concept that is embedded in a system of concepts, what Veyne called a "plot." It is the plot that gives the concept meaning by relating it to other concepts, and leads to a certain way of seeing Roman society, and to certain kinds of questions for further historical research. But the various plots under which these Roman practices can be understood do not sum up to a "complete" understanding of the practices. There is no hidden "true" shape of which these ways of understanding are partial views.[31]

This insight highlights a fundamental difference between the informal concept of a *view* as a particular way of understanding something, and way the concept of a view is formalized in knowledge organization systems. A faceted knowledge organization system or relational database allows one to combine in various ways different subsets of a predefined set of relationships. Each of these combinations is referred to as a *view*. Each view is an aspect of and is computed or collated from the same complex whole: the predefined set of relationships. But this predefined set of relationships is itself a model, albeit a complex one, abstracted from some (informal) point of view. Informal points of view—different ways of understanding—have no such predefined set of relationships from which they are generated.

Thus Fairthorne cautioned classifiers against "the naive belief ... that differences arising from different points of view can be dealt with by the classificatory equivalents to rules of perspective."[32] A classifier, given sets of texts that mention these Roman practices, will face the problem of deciding what the texts are about, and any of the concepts Veyne listed is a plausible subject. Each concept is constructed over time by a particular discourse about ancient Roman history, as inferred from the set of documents that is a partial record of that discourse. There is no standpoint from which the classifier can obtain a view of the "whole landscape" of ideas about Roman society, because no such landscape exists, only these strands of discourse with their own histories and systems of concepts.[33] The classifier thus faces the imaginative and interpretative challenge of finding patterns in these discourses and representing these patterns in a system of knowledge organization.[34]

Patterns in discourse change over time. An excellent semantic tool could also inform its users about conceptual history (changes in relationships between terms and concepts or changes in the relationships between concepts) and the relations between particular concepts and the broader paradigms of which those concepts are part. An example of a semantic tool that strives to fulfill these latter functions is a concept dictionary. A concept dictionary aims to better enable interdisciplinary collaboration by orienting scholars to concepts from other disciplines and to give scholars in a given discipline an overview of conceptual change.[35]

30. Veyne, *Writing History*, 37.
31. Ibid., 37–40.
32. Fairthorne, "Temporal Structure in Bibliographical Classification," 404.
33. Ibid.
34. Feinberg, "Hidden Bias to Responsible Bias."
35. Raymond G. McInnis, "The Lexicography of Scholarly Concepts," in *Social Science Reference Services*, ed. Pam M. Baxter (New York: Haworth Press, 1995), 27–55. A famous example of a concept dictionary that has shaped

Conceptual change poses a challenge for the description of the content and context of documents. A collecting institution acquires a document at a certain point in time. It attempts to describe that document in ways that reflect users' potential understandings of it. But with the passage of time users' understandings of that document are likely to change. Content that users once considered cutting-edge may come to be considered out-of-date. Different kinds of content may become obsolete more or less quickly than others. Even when the content remains relevant, the terminology used to describe it may be obsolescent. Librarians must develop an understanding of this kind of change, and to do so is to engage in a kind of intellectual history. Thus documentary languages and selection systems, like any knowledge organization system, have a historical aspect to them.[36]

3.4 Boundary Practices: Editions and Exhibits

The boundary between knowledge organization and history scholarship is further blurred by activities like historical editing. Historical editors present edited versions of historical documents such as poems, articles, speech transcripts, and letters. Making these documents widely available is the primary purpose of historical editors, but the editors also provide the explanations needed to understand the documents. The original documents may not have survived intact, requiring reconstruction of their texts by knowledgeable editors. Historical editors, like archivists, seek to contextualize the texts they present by providing background material explaining connections among documents and related people, organizations, places, and events. But the contextual explanation and annotation provided in a edited collection of texts typically goes far beyond what is found in an archival finding aid. It involves a great deal of original research and interpretation. Indeed, the only real difference between editorial and non-editorial history scholarship may be whether the scholars take as their starting point some set of documents (as editors do) or some set of questions. Moreover, even historical projects not considered to be editorial projects will often reproduce and present some original sources. As a result, any rigid distinction between the roles of archivist, historical editor and history scholar is untenable.[37]

Another activity that collapses distinctions between these roles is exhibit design. Consider the case of exhibits put on by archives. While archives primarily serve to support the research of scholars and others interested in closely studying survivals from the past, this is not their only function. Archives also can be sites for public communication in the form of exhibits. The designers of archival exhibits select documents from the archive, develop a great deal of illustrative and explanatory documentation such as labels, signs, brochures, guidebooks, videos and Web sites, and construct a physical or virtual space intended to structure visitors' experience of the exhibited materials and supporting documentation. The exhibit taken as a whole is a history-as-portrait that fully embraces that status. Unlike the finding aid or the historical edition, the exhibit may openly propose a specific point of view or take a side in a historical debate. A good example of this is the

scholarly discourse is Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (New York: Oxford University Press, 1976). A particularly ambitious concept dictionary is the eight-volume *Geschichtliche Grundbegriffe*, which attempts to trace the historical development in German language and thought of basic concepts such as *peace* and *law*. [][Begriff1972].

36. Michael Buckland, *Information and Information Systems* (New York: Greenwood Press, 1991), 59–62.

37. Berkhofer, Jr., *Fashioning History*, 103–115.

traveling Discovering the Civil War exhibit developed at the United States National Archives. It promises "a fresh look at the Civil War through little-known stories" by presenting documents from the archives alongside "engaging touch-screen interactives incorporating social media tools in a physical environment inspired by 21st Century research rooms."[38] The exhibit's designers are very explicit about their interest in portraying the Civil War from unorthodox perspectives and use a variety of media to narrate "little-known stories" at a range of scales.[39]

When archives mount exhibits like Discovering the Civil War, they are functioning similarly to museums, which also use exhibits as a means to communicating with their audiences. Museum exhibits construct meaningful contexts for historical artifacts. Like authors of historical monographs, exhibit designers pose certain questions about the past and attempt to partially answer those questions through the medium of the exhibit, which is not merely a collection of objects but a single composite work.[40] Consider the "period room," a type of historical exhibit which purports to present "as it was in the past" a room in a preserved building or to reconstruct such a room in a museum. McClung Fleming compared the process of a curator installing a period room in a restored Pennsylvania German farmhouse to a university history professor writing a book on the Pennsylvania Germans.[41] In both cases the creator will conduct research using primary and secondary sources, classify and organize under concepts what he has found, and develop "statements" that convey his informed judgments and inferences about the past. The result of both processes is a "culture document" that is both a factual and a creative product.

Exhibit design theorists consider the possibilities for structuring the physical context of the exhibit to constitute a kind of language that, along with the natural language used for labels and signs and by guides, allows the exhibit designer to express her understanding and intentions.[42] Depending on how the designer has chosen to organize her material under colligating concepts, the resulting conceptual structure of the exhibit can take various forms. An exhibit may portray some actual place as it is believed to have appeared at a specific moment in the past, just as a historical text may narrate specific events "as if you were there." Or the exhibit may abstract from any specific individual or event to show the way certain kinds people lived in a particular region during a given period, just as in the case of Veyne's Nivernais peasant (see section 2.2.2).[43] Even an exhibit that simply arranges objects chronologically, without purporting to present a specific narrative, nevertheless conveys a sense of inevitable progress.[44] And an exhibit may develop ideas that are not necessarily continuous in space and time, as in Mandelbaum's "special histories." For example, an exhibit may develop a concept of a given artistic style and its variations, or of a profession and the functional interrelationships of its tools and technologies.[45]

38. U.S. National Archives and Records Administration, "About the Exhibit," http://www.archives.gov/exhibits/civil-war/about/.

39. Edward Rothstein, "New Shades of the Blue and the Gray," *New York Times*, April 29, 2010, http://www.nytimes.com/2010/04/30/arts/design/30museum.html.

40. Richard Rabinowitz, "Exhibit as Canvas," *Museum News* 70, no. 2 (1991): 34–38.

41. E. McClung Fleming, "The Period Room as a Curatorial Publication," *Museum News* 50, no. 10 (1972): 39–43.

42. Peter van Mensch, "Towards a Methodology of Museology" (PhD diss., University of Zagreb, 1992), http://www.muuseum.ee/et/erialane_areng/museoloogiaalane_ki/ingliskeelne_kirjand/p_van_mensch_towar/.

43. Fleming, "The Period Room as a Curatorial Publication."

44. Rabinowitz, "Exhibit as Canvas."

45. Fleming calls period rooms of this type "artistic" or "utilitarian" period rooms, distinguishing them from "historical" period rooms that ostensibly present some past environment as it actually was. Fleming, "The Period Room as a Curatorial Publication." I maintain that all of these types are "historical" despite differences in their conceptual

Not every exhibit of artifacts is necessarily a history-as-portrait. A collection of objects selected and arranged purely on aesthetic grounds, without any explanatory labels or signage, would not constitute a history-as-portrait.[46] Nor would an exhibit that purposefully constructs nonfactual concepts. For example, the exhibits found at the Museum of Jurassic Technology present plausible fictions—things that seem as if they could be true, complete with citations to scholarly works that seem as if they could have been written.[47] These exhibits are fascinating but not historical, since their designers do not intend to portray the past. An exhibit must develop a narrative about a historical past that aims to present factual knowledge about that past to be a history-as-portrait.

But history-as-portrait is not limited to what are sometimes narrowly defined as "narrative exhibits." Peter van Mensch, for example, limited his definition of narrative exhibits to ones organized along linear, sequential story lines.[48] This definition reflects an inadequate notion of "narrative." Ironically, Van Mensch demonstrated this inadequacy by citing Marshall McLuhan's criticism of linear, sequential museum exhibits. McLuhan claimed that

> in order to create involvement, you have to take out the story line and perspective, and stress process. This is the great discovery of Edgar Allen Poe. In his poetry and stories he discovered that if he pulled out the connections he could get much higher involvement. The reader becomes co-producer, co-creator.[49]

Did Poe's works cease to be narratives because he made them less explicitly linear? Of course not. Poe simply demonstrated that narrative structure need not be narrowly defined as a linear sequence of events with a beginning, middle and an end. Authors can guide and engage their audiences using a variety of narrative strategies. I return to the various forms that narrative history can take in section 4.6.

3.5 Computers, Databases, Digitization, and the Web

Computers, databases, digitization, and the Web have catalyzed the intermixing of history-as-practice and knowledge organization in a number of ways. Computers and software such as relational databases gave history scholars new tools for organizing and analyzing their sources, at the same time that collecting institutions were adopting the same tools for organizing their collections. The ability to create digital surrogates of documents and the advent of born-digital documents opened new possibilities for document description, retrieval, and analysis by both scholars and knowledge organizers. And the Web has lowered the costs and increased the benefits of collaborating to create documents and data and sharing them for use outside the context of their original creation.

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arrangement.

46. The Renaissance "cabinet of curiosities" exemplified this kind of collection.

47. Matthew W. Roth, "The Museum of Jurassic Technology, Culver City, California," *Technology and Culture* 43, no. 1 (2002): 102–109, doi:10.1353/tech.2002.0038, http://www.jstor.org/stable/25147857.

48. Van Mensch, "Towards a Methodology of Museology."

49. Marshall McLuhan et al., *Exploration of the Ways, Means, and Values of Museum Communication with the Viewing Public* (New York: The Museum of the City of New York, 1969), 12.

Historians' use of computing is closely associated with their use of quantitative methods. In the early 20th century, economically-minded historians and historically-minded economists began applying quantitative methodologies to study history using economic data sets.[50] Although quantitative history initially focused on obviously quantitative economic data such as records of prices, it eventually broadened to include any kind of document from which could be abstracted sequences of comparable data amenable to statistical analysis. Thus quantitative history moved on from its economic roots to encompass demography and even the history of ostensibly qualitative things such as attitudes toward death (studied through quantitative analysis of wills and funeral records).[51] Quantitative historians were often at the cutting edge of technological development, using tools such as punched cards to expand the size of their statistical analyses in the 1940s and 1950s. By the late 1960s and early 1970s, the appearance of computers on university campuses invigorated quantitative history by enabling historians to work with vastly larger datasets and more powerful statistical techniques. By the 1970s there were a number of specialized journals and conferences focused on the methods and techniques of "historical computing."[52]

Quantitative historians embraced the relational database as a means of manipulating and analyzing their source data. To store any kind of data in a relational database, one must first develop a model of that data's structure. Data stored in a relational database, rather than simply being a sequence of records, is separated into *tables* where each table represents some concept or type of entity defined by the model. Consider for example how one might store data extracted from parish registers in a relational database. In their original form, parish registers consist of sequences of entries recording information about baptisms, marriages, and burials at a given parish. A relational model of this information might define tables for `parish`, `baptism`, `marriage`, `burial`, and `person`. Each original entry from a parish register would then become a relation among individual rows in these tables.

The advantage of the relational model is that it allows rapid and efficient aggregation of information about a given entity. For example, suppose a man were baptized and married at one parish and later buried at a different parish. In the original documents his name would appear twice in one register, and once in a different register. In the relational database, his name would only appear once in a row in the `person` table, which would be linked to rows in the `baptism`, `marriage`, and `burial` tables. The rows in the `baptism` and `marriage` tables would in turn be linked to one row in the `parish` table, while the row in the `burial` table would be linked to a different row in the `parish` table (see Figure 3.1). With this structure one could easily select all the data related to a particular person, or parish, or kind of event. More sophisticated queries would be possible as well, since baptism and marriage events also represent family relations among people.

The relational model is the same kind of model found in authority control systems, where individual authority records can be linked to one another rather than recording redundant information. The major differences between the relational models of authority control systems and the relational models defined by an individual historian is that the latter are typically far more detailed

50. Paul Ricœur, *The Contribution of French Historiography to the Theory of History* (Oxford: Clarendon Press, 1980), 20–22.

51. Ibid., 31–32.

52. William Thomas III provided a good overview of the recent history of historical computing and the controversies it generated. William G. Thomas, III, "Computing and the Historical Imagination," in *A Companion to Digital Humanities*, ed. Susan Schreibman, Ray Siemens, and John Unsworth (Oxford: Blackwell, 2004), chap. 5, `http://digitalhumanities.org/companion/`.

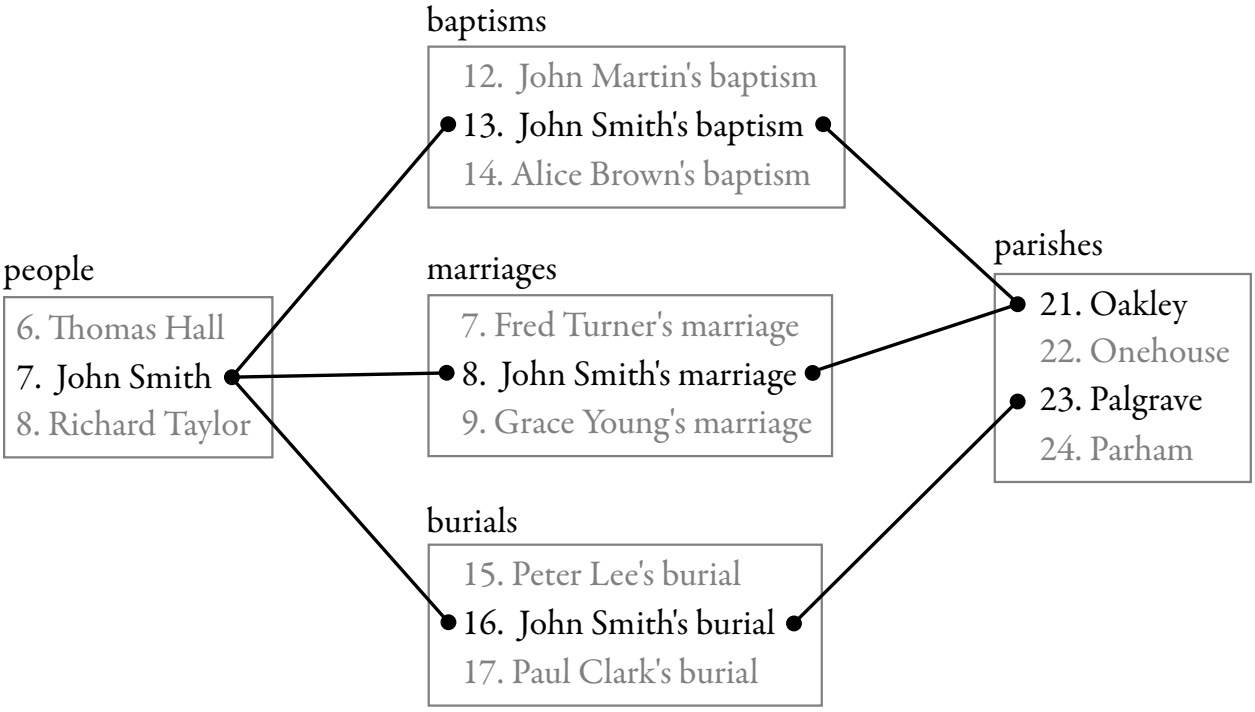

Figure 3.1: A relational model of records from parish registers.

and usually only intended for a relatively small set of data being worked with by an individual historian or team of historians. The concepts and entities defined in authority data models are more generic and intended for use in a wide variety of contexts, across a number of distributed systems. For example, while an individual scholar's database need only identify a particular person within the scope of that database, an authority control system must identify a person globally. However, these are differences of scale rather than differences in kind. One can imagine an integrated system that includes both the broad relations of authority control systems and the specialized models of individual historians.

Originally historical databases were viewed as an intermediate product of historical research, to be used for manipulating and analyzing data as a means to the end of writing an article or book presenting one's findings.[53] With the development of the Web, however, it became feasible to publish historical databases alongside the narrative products of the research conducted on them.[54] More recently, historical databases have begun to be recognized as scholarly products in their own right. For example, the historical subfield of prosopography produces "collective biographies" of individuals defined as member of some group such as a society, class or profession. Contemporary prosopographical research nearly always utilizes a relational database or comparable technology

53. Charles Harvey and Jon Press, *Databases in Historical Research: Theory, Methods, and Applications* (New York: St. Martin's Press, 1996), 2–5.

54. An exemplar of this is Thomas and Ayer's "electronic article" which integrates a hypertextual presentation of their data with argument based on the data and narrative that contextualizes it. William G. Thomas, III and Edward L. Ayers, "The Differences Slavery Made: A Close Analysis of Two American Communities," *The American Historical Review* 108, no. 5 (2003), doi:10.1086/529967, http://www2.vcdh.virginia.edu/AHR/.

to store information about individuals and their relationships, such as that given in the parish register example above. In some of the most prominent prosopographical projects such as the *Prosopography of Anglo-Saxon England*, this database has come to be seen as the primary scholarly output of the project.[55] Contributors to the database hope and expect that their work will be built upon and continued by other scholars.

Relational databases depend upon rigorous model definitions to operate efficiently. To work with a relational database requires a historian to make a number of decisions about the specific details of how to model her data and how to transform the raw material of her source documents into instances that fit her model. In other words, working with a relational database calls for a meticulous process of conceptualization and the subsequent formalization of that conceptualization. There is more need to negotiate and standardize these formalized conceptualizations as database-centered historical research projects become larger collaborative efforts. In short, the problems faced by historical researchers become more like those faced by the designers and maintainers of authority control systems.

The designers of authority control systems were initially focused on naming control as a way to ensure consistency in the assignment of access points to catalog records. Yet authority records have begun to evolve into hubs for attaching additional information about entities, far beyond their names, as the Web has made it easier to link knowledge organization systems. Two techniques for linking knowledge organization systems have especially contributed to this expanded role for authority records: the large-scale statistical analysis of bibliographic records and the linking of identifiers in digital reference resources to identifiers in authority records.

The possibilities of enriched name authority records have been explored by the Online Computer Library Center (OCLC) in their WorldCat Identities project.[56] WorldCat Identities is built using the bibliographic records of the OCLC's 72,000 member libraries, from which personal and corporate names are extracted. These names are mapped to Library of Congress name authority records where possible. German and French names are also mapped to records from the Deutsche Nationalbibliothek and the Bibliothèque nationale de France through the Virtual International Authority File.[57] For each name WorldCat Identities creates an identifier and Web page. The Web page includes typical name authority data such as the preferred name and variant names, but it also provides additional information about the person or organization designated by those names. Most of this additional information is generated by statistical analysis of the catalog records that use the name in question. For example, the WorldCat Identities page for *Goldman, Emma 1869-1940* lists the most widely held works about Emma Goldman and the most widely held works authored by Emma Goldman, both calculated from the holdings of the OCLC member libraries.[58]

Statistical analysis of controlled names used in bibliographic records can yield associative relationships between any kinds of entities identified by those names. WorldCat Identities analyzes

55. John Bradley and Harold Short, "Texts into Databases: The Evolving Field of New-Style Prosopography," *Literary and Linguistic Computing* 20, no. Suppl. no. 1 (2005): 3–24, doi:10.1093/llc/fqi022, http://llc.oxfordjournals.org/cgi/doi/10.1093/llc/fqi022.

56. Online Computer Library Center, "WorldCat Identities," http://worldcat.org/identities/.

57. Thom Hickey, "Identities and Authorities," 2007, http://outgoing.typepad.com/outgoing/2007/02/identities_and_.html.

58. Online Computer Library Center, "Goldman, Emma 1869–1940 [WorldCat Identities]," http://worldcat.org/identities/lccn-n50-34593 (accessed May 17, 2010).

the co-occurrence of names in catalog records to find relationships between names. So, for example, the WorldCat Identities page for *Goldman, Emma 1869–1940* lists under "Related Identities" *Berkman, Alexander 1870–1936* (her lover and comrade), *Paul Avrich Collection (Library of Congress)* (a collection of radical literature), and *Falk, Candace* (the director of the Emma Goldman Paper Project).[59] These relations among names can be interpreted as a network of relationships among the people and organizations designated by those names. Co-occurrence analysis is also used to create a list of subject headings to which the name is related. Related subject headings are weighted by the number of times they occur together with the name, to give a sense of which subjects are most prominent or important for the name in question. For example, the WorldCat Identities page for *Goldman, Emma 1869–1940* lists *Anarchism*, *Feminists*, and *Women and socialism* among the most strongly associated subjects.[60]

The examples above focus on name authority data, but in principle there is no reason why similar techniques could not be applied to all kinds of authority data. The Internet Archive's Open Library project has analyzed over 20 million bibliographic records to calculate co-occurrence relations between people, places, ranges of time, and other subjects.[61] These associations could be used by institutions that maintain authority files to enrich their records. For example, the place name authority file of the Library of Congress (the MARC Code List for Geographic Areas) has relatively few relations among places, and these few are limited to hierarchical relations such as *Brazil* being part of *South America*. The Open Library page for *Brazil* lists not only hierarchical relations to states and cities within Brazil, but also associative relations to other countries such as Portugal (the colonizer from which Brazil gained independence) and the United States and Argentina (Brazil's primary trading partners).

Digital authority records can also link to online reference resources. WorldCat Identities links each name to its corresponding article (if one exists) in the English Wikipedia. This kind of linking of authority data with reference resources has been taken much further in a collaboration between the German Wikipedia and the Deutsche Nationalbibliothek (DNB).[62] The German Wikipedia has developed a tool for retrieving name authority data from the DNB's Personennamendatei (PND) and embedding the PND identifiers in German Wikipedia articles about people. The PND identifier is used to create links on German Wikipedia articles about people that users can follow to search for books by or about that person in the DNB catalog. Embedding

59. Because the relationships presented in WorldCat Identities are based solely on statistical co-occurence of names, no distinctions are made among the types of relationships. What little role information is available is limited to what can be found in catalog records. For example, on the WorldCat Identities page for Emma Goldman, Alexander Berkman is labeled as "Editor" because he is so labled in the catalog records from which that relation is calculated, despite the fact that he held other, possibly more significant, roles with respect to Emma Goldman.

60. The associated subjects lists in WorldCat Identities demonstrate a strange side effect of the artificial distinction the Library of Congress makes between name authority records and subject authority records (see section 3.3). Because there is a both a name authority record for *Goldman, Emma 1869–1940* as well as a separate subject authority record for *Goldman, Emma 1869–1940*, the latter is listed as the subject most strongly associated with the former, a pattern that one would expect to hold for any name of a person or organization that is the subject of many works.

61. Open Library, `http://openlibrary.org/`. Unlike WorldCat Identities, the Open Library has processed their authority data to remove the artificial distinction between, for example, people-as-authors and people-as-subjects. Thus in the Open Library "subjects" are just terms that haven't been identified as the names of people, places, or ranges of time.

62. Jakob Voss, "Metadata with *Personendaten* and Beyond," in *Proceedings of Wikimania 2005* (Frankfurt: Wikimedia Foundation, 2005), `http://meta.wikimedia.org/wiki/Transwiki:Wikimania05/Paper-JV2`.

these identifiers also links the PND to the German Wikipedia's *Personendaten*, a database of basic biographical information generated by the inclusion of standard template on every article about a person in the German Wikipedia. This enables a two-way flow of information between the national library and the Wikipedia community, so that not only can Wikipedia users exploit the library's resources, but the library can also benefit from edits and changes to the biographical information by Wikipedians. Creators of name authority records already rely on reference sources like Wikipedia.[63] By attaching PND identifiers to Wikipedia biographical data, the Germans have formalized this process and made it easier for authority record creators to find relevant information in Wikipedia and evaluate it for inclusion in official authority records.

It has always been considered good practice in the creation of authority records to cite external sources, usually authoritative reference works. But in a digital environment such linking can go much further. For example, when place name authority records are linked to digital gazetteers, the various spatial relationships found in the latter can be used to augment the sparse set of relations typically found in place name authority files. Using the geospatial coordinates or boundary shapes from gazetteers, catalogs can also offer map interfaces for finding documents about or published in particular places.[64]

As more descriptive information and relationships are added to authority records, and as more identifiers in reference resources and scholarly databases are linked to identifiers in authority control systems, the distinction between authority records, reference resources and scholarly databases begins to disappear. A fully enriched authority record for a person may be indistinguishable from a record for that person in a biographical or prosopographical database. A record in a gazetteer looks very much like an elaborate place name authority record. Any kind of authority record may begin to resemble a (highly structured) encyclopedia article on the designated subject.

In fact, a digital encyclopedia like Wikipedia already fulfills many of the basic functions of an authority file. Each article in Wikipedia is found under an "authorized" title, and there can be any number of "variant" titles that redirect to the authorized title. For example, the authorized title of the Wikipedia article on Emma Goldman is "Emma Goldman," and "Red Emma" also is a variant title that redirects to the same article. Thus these redirects serve the purpose of naming control within a single language. Naming control across languages is achieved through the links created between corresponding articles in different language versions of Wikipedia. So by following the link from the Emma Goldman article in the English Wikipedia to its corresponding article in the Japanese Wikipedia, one can find the Japanese form of her name: エマ・ゴールドマン. Finally, lists of various authorized terms to which an ambiguous term may refer can be found on Wikipedia disambiguation pages. For example the disambiguation page for "Emma" lists a number of possible interpretations of that name, including a nickname for Emmanuel College at Cambridge University, an acronym for the Electronic Municipal Market Access system, and of course a female given name. The last of these leads to a page listing a number of articles on women with the given name "Emma," among them Emma Goldman.

It is clear that, considered as a standalone authority file, Wikipedia is much richer and more useful than the Library of Congress name authority file. But of course only the latter has been used in the creation of millions of catalog records. Thus there is a need to link the two files. Given

63. See for example the name authority record for Barack Obama discussed in section 3.3.

64. Michael Buckland et al., "Geographic Search: Catalogs, Gazetteers, and Maps," *College and Research Libraries* 68, no. 5 (2007): 376–387.

the vast differences in structure, governance, and process between the Library of Congress and Wikipedia, it would be undesirable to merge the two systems. A single organization should and could not control all the information found in these two systems. But they should be made interoperable and potentially linkable into a single *distributed* system. Why separate and isolate authority records, records in a reference resource such as a gazetteer or encyclopedia, and records in a scholarly research database? Though they may differ in granularity of description and degree of interpretation, a well-designed, flexible network of knowledge organization systems could and should connect all of them.

3.6 Conclusions

I've argued that organizers of documents in libraries, museums and archives engage in procedures of conceptualization that resemble, and are in fact continuous with, the procedures of conceptualization engaged in by history scholars. As these procedures involve more and more synthesis and explicit construction of interpretative viewpoints, they are increasingly likely to be perceived as history-as-practice. Conversely, the more these procedures seem limited to selection and description, the more likely they are to be characterized as organizational practice. But the differences are ones of degree and not of kind.

Another way of describing the difference between organizational and historical practice is in terms of the degree to which documents or questions are the starting point. An archivist must work with the documents in her charge, and her procedures of description and classification will start from those documents. Likewise for the museum curator or the librarian. The history scholar, on the other hand, wishes to answer a particular question about the past. The nature of this question will determine which survivals from the past can be regarded as possible evidence for its eventual answer. The history scholar transforms survivals from the past into documents by pronouncing what it is that they are documenting.[65]

But this distinction between starting with documents or starting with questions is too neat. Again there is no clear boundary but a matter of degrees. Though they may not be explicitly stated, the activities of the archivist, curator and librarian are also guided by questions. These questions are "answered" by the collections developed, and the questions guide the procedures of selection and organization used to develop the collections. These procedures initiate the survival's transformation into a document, a transformation continued by the history scholar. And the history scholar's questions do not arise in a vacuum, but are prompted by the archived documents she encounters and the recorded discourse to which she is exposed. As Marrou wrote, "The historian's originality will often consist in discovering the direction in which any particular set of documents, no matter how well exploited previously, can lead to information about a wholly new question."[66]

There has always been a permeable boundary between the practices of knowledge organizers and history scholars. In a networked digital environment, the boundary threatens to disappear completely, as the conceptual modeling and organization efforts of scholars become interlinked with the efforts of knowledge organizers. Place name gazetteers, encyclopedias, biographical directories, dictionaries of concepts, and other long-established reference resources are becoming

65. Marrou, *The Meaning of History*, 81–82.
66. Ibid., 76.

shared services for finding and providing contextual background to documents. The elements needed for such services—including identifiers for entities and concepts of interest and various kinds of semantic relationships for linking them to one another—are being produced by history scholars, but they are only beginning to be aggregated into coherent or interoperable wholes.

The ideas in this dissertation are intended to contribute to this effort, located at the boundary of history scholarship and knowledge organization, to produce formal models of historical concepts. In the following chapter I focus more closely on the definitive historical concepts: periods and events. Periods and events are the concepts that make history-as-practice what it is, and the problems of defining them have received a great deal of attention from reflective historians and philosophers of history. Yet neither "digital historians" nor knowledge organizers have paid much attention to formal models for periods and events. Those who have paid them attention have tended to make assumptions that are untenable upon further reflection. Periods and events are critical concepts for structuring historical knowledge and deserve to be treated as first-class elements of knowledge organization systems. To do so would be an important step toward bridging the gap between the development of tools and infrastructure for digital history scholarship and the development of networked knowledge organization services. But first we must come to a better understanding of what periods and events are.

Chapter 4

Temporal Concepts in History: Periods and Events

> All of us, even when we think we have noted every tiny detail, resort to set pieces which have already been staged often enough by others. We try to reproduce the reality, but the harder we try, the more we find the pictures that make up the stock-in-trade of the spectacle of history forcing themselves upon us: the fallen drummer boy, the infantryman shown in the act of stabbing another, the horse's eye starting from its socket, the invulnerable Emperor surrounded by his generals, a moment frozen still amidst the turmoil of battle. Our concern with history, so Hilary's thesis ran, is a concern with preformed images already imprinted on our brains, images at which we keep staring while the truth lies elsewhere, away from it all, somewhere as yet undiscovered.
>
> W. G. Sebald, *Austerlitz*

In chapter 2 I argued that history-as-practice is in part a process of conceptualization. In this chapter I look more closely at the concepts historians use to represent time and change over time: periods and events. Periods and events are central to historical conceptualization, and they have changed as the practice of history has changed. I give an overview of these changes in the course of examining some different theories of how historians engage in periodization and how they structure their portraits in terms of historical events.

4.1 Periodization

The division of historical time into periods is called *periodization*. Berkhofer pointed out that "historic time like all time must be divided in order to be told."[1] The stories that we tell necessarily take the form of successive chunks of happening, so storytellers are faced with the problem of how to divide their stories into chunks. Furthermore, it seems that historic time also must be divided to be taught. Peter Stearns called periodization "the conceptual tool that makes change over time

1. Berkhofer, Jr., *Fashioning History*, 129.

a manageable topic, and therefore history teaching feasible."[2] History textbooks and syllabi are organized around particular periodizations, and these structures are reflected in the organization of university history departments, academic journals, conferences, and so on.

Periodization is a strategy historians use to represent change and continuity. Marc Bloch described this representation as the central challenge facing historians:

> Real time is, in essence, a continuum. It is also perpetual change. The great problems of historical inquiry derive from the antitheses of these two attributes. ... Let us assume two consecutive periods taken out of the uninterrupted sequence of the ages. To what extent does the connection which the flow of time sets between them predominate, or fail to predominate, over the differences born out of that same flow?[3]

Given that things constantly change, the problem of periodization is how to justify emphasizing differences between periods and continuity within them. The desire to represent continuity stems from what Berkhofer called "the principal insight of the modern historical profession," the idea that "thoughts, activities, and institutions are best described and explained as somehow fitting together in the era in which they are said to occur."[4] This idea originated among the historians and philosophers of nineteenth century Germany, who called it *historismus* or historism. Friedrich Meinecke defined historism as "the substitution of a process of *individualising* observation for a *generalising* view of human forces in history."[5] Historism emphasized the unique qualities of individual periods of time.

To make assertions about the individuality of periods, historians must first decide what those periods will be. They must identify some boundary markers. Traditionally these markers were political events such as the deaths or defeats of rulers. Eventually, however, alternative periodizations became more prominent:

> The great epochs were marked out by the dominations of conquering peoples who successively destroyed each other ... Within each nation, the succession of kings furnished the boundaries for the smaller divisions. These habits have proven remarkably tenacious ... There gradually appeared new divisions which, free from the imperialist or monarchical obsession, could be ordered according to profounder phenomena ... Formerly, battles, court politics, the rise or fall of great dynasties had furnished the general framework within which art, literature, and the sciences were fitted more or less badly. Now it was to be the reverse.[6]

Not only do the criteria for periodization change over time, but "inevitably period terms have their own complex histories."[7] A recent example of this is the squeezing of the Renaissance by the growth of the late Middle Ages on one side and the Early Modern period on the other.[8]

2. Peter N. Stearns, "Periodization in World History Teaching: Identifying the Big Changes," *The History Teacher* 20, no. 4 (1987): 561, doi:10.2307/493757, http://www.jstor.org/stable/493757.

3. Bloch, *The Historian's Craft*, 28–29.

4. Berkhofer, Jr., *Fashioning History*, 76.

5. Friedrich Meinecke, *Historism: The Rise of a New Historical Outlook*, trans. J. E. Anderson and H. D. Schmidt (London: Routledge, 1972), lv.

6. Bloch, *The Historian's Craft*, 177–189.

7. Ludmilla Jordanova, *History in Practice* (London: Oxford University Press, 2000), 115.

8. Daniel Melia, personal communication, June 28, 2010.

Despite these changes, period terms and criteria for periodization are, as Bloch noted, "remarkably tenacious." Political periodizations still dominate the popular consciousness of history as well as our formal systems of knowledge organization. Periods, like any concept, are useful in proportion to their stability and to the extent that they gain acceptance, and this gives successful periodizations a kind of inertia that resists historians' efforts to produce new periodizations. A period that has successfully been named and "packaged" through the efforts of historians becomes "an accessible point of reference" and an organizing principle not only in historical scholarship but in the culture at large.[9] Historians cannot unilaterally remove such principles when they fall out of fashion.

An excellent example of how periodizations persist was provided by the Flemish association of history teachers, in a document outlining the vision for a new secondary school history curriculum. The document stated that

> when it comes down to the periodization of history, the curriculum board opts for the traditional division, as it is used in public life (media, history manuals, musea, expositions ...) and in information intended for pupils (juvenile literature, comic strips, juvenile magazines, television ...). In this manner pupils can easily link up extracurricular information about history with historical information at school and thus discover the social relevance of history.[10]

The Flemish teachers opted for a "socially relevant" periodization that would correspond with the one found in popular media. Because popular media like juvenile literature, comic strips, and television seek to entertain, it is likely that the periodizations they rely on will be demarcated by spectacular events rather than, say, gradual climatic change or technological development. Ludmilla Jordanova noted that "events as period organisers ... lend themselves to symbolisation. Because they can be presented as unitary, simple, discrete units, they easily get a grip on us, fit into larger patterns, and work their magic through all the means cultures afford them."[11] By embedding this periodization in national standards for history curriculums, the history teachers will, of course, further strengthen this dynamic.

4.2 Periods as Norm-Defining Models

Events demarcate and organize periods, but periods also organize events. Periods organize our understanding of specific events in two ways, according to Gordon Leff.[12] First, periodization categorizes events or their participants in a particular way using some set of ideal types. Types such as *absolute monarch* or *religious minority* "act as the comparative model telling [the historian] how the events he is examining do or do not differ from [the types] under which they fall."[13] These types can be defined at different levels of generality, so for example the type *absolute monarch*

9. Jordanova, *History in Practice*, 122.

10. *Historical Formation: Design of Vision* (Vereniging voor Leraren Geschiedenis, 1999), `http://users.telenet.be/michel.vanhalme/historical.htm`.

11. Jordanova, *History in Practice*, 124.

12. Gordon Leff, "Models Inherent in History," in *The Rules of the Game: Cross-disciplinary Essays on Models in Scholarly Thought*, ed. Teodor Shanin (London: Tavistock, 1972), 149.

13. Ibid., 159.

might be specialized by a type *seventeenth-century French king*. Second, periodization introduces the periods themselves. A period is a set of story lines, "a dossier of the main case histories making up a particular span of time upon which the historian can draw to make a kind of identikit for his particular historical situation, however widely or narrowly defined."[14]

These story lines draw upon ideal types and contain plot elements that link characters and types in certain ways. So, for example, the Reformation is a set of story lines tracing the conflict between a religious minority and a religious majority (ideal types), or more specifically the conflict between Protestantism and Catholicism (characters). Likewise, the Age of Absolutism is a set of story lines tracing the development of the absolute monarchy (ideal type) in France and in particular the reign of Louis XIV (character). The period tells the historian "what he must expect—persecution, absolutism—and what he cannot expect—tolerance or electricity; in that sense he receives his norms from his view of the epoch."[15]

Together the characters, ideal types and the period provide a sort of scaffolding for investigating some specific set of events. Leff used as an example the set of events related by the sentence *In 1690 Louis XIV revoked the Edict of Nantes which had protected the Huguenots from persecution and they were forced to flee the country*.[16] This set of events includes the enacting of a law to protect the Huguenots from religious persecution, the revocation of that law by Louis XIV, and the Huguenots' fleeing the country. To be properly understood, these events must be located within the broader model of the historical situation provided by a periodization. So, for example, in this case the Huguenots might be categorized as a Protestant sect and as a religious minority in France, while Louis XIV might be categorized as a French king and an absolute monarch. These categorizations link specific events and characters to ideal types and locate them within the particular story lines of the period.

In section 2.2.2 I claimed that periods are totalities that include or depend upon both ideal types and characters. Leff's theory of periodization supports that claim by showing how periods link specific events via some set of characters and ideal types. Ideal types are universal and comparative, while events and the characters that participate in them are time-bound and particularizing. The general and the specific are united within the story lines of periods. Periods are the product of "the need to relate generic continuity to temporal discontinuity."[17]

Yet Leff overstates the extent to which periods define the "norms" governing historical investigation. Of course it is true that the historian necessarily approaches his work with presuppositions, a particular worldview, "some order of priorities which enables him to place events and measure their significance."[18] But to the extent that the historian is explicitly aware of his presuppositions then they are as likely to provide a target for the historian to explode as they are to provide scaffolding. Norms do exist in history as in all other forms of scholarly practice, but historians seem less willing than scientists to accept existing paradigms. Suggesting new paradigms is how historians make their names.

14. Leff, "Models Inherent in History," 158.
15. Ibid., 159.
16. Ibid., 157.
17. Ibid., 151.
18. Ibid., 153.

4.3 The Unreflective View of Historical Events

A more serious problem with Leff's theory of periodization is that it treats events and periods as essentially different kinds of phenomena. In Leff's theory events are actual things that happened, which historians then categorize or group into periods. Leff views periods as more-or-less arbitrary abstractions, but treats events as *things* that existed in the past. If one views events as things in the past, it is natural to then see history-as-past as a kind of fabric woven of these events, history-as-practice as the study and description of that fabric, and history-as-portrait as the descriptions thus produced. According to this view, historians construct periods, which thus belong to history-as-portrait, but they simply describe events, which belong to history-as-past.

This way of thinking is what Ricœur called the "unreflective" view of the historical event.[19] According to Ricœur, this view has two aspects. The first aspect involves assumptions about ontology: what events are. The first ontological assumption is that events are (were) objectively existing happenings in the past. The second ontological assumption is that what makes events *historical* is their relationships to *people* in the past. Events without any connection to people may have occurred, but these are not considered to be part of the domain of history, i.e. *historical* events. A historical event is something that people made happen, such as a revolution, or something that happened to people, such as an earthquake. The final ontological assumption is that because historical events involve people in the past, there exists between historical events and our present experience an unbridgeable temporal gap. Since one can't travel back in time, one can't directly experience (or re-experience) historical events.

The second aspect of the unreflective view of historical events consists of epistemological assumptions. How can one know about historical events, given that one can't travel back in time to observe them? The first epistemological assumption is that one can only know about an event through descriptions of its unique characteristics. In other words, each historical event is unique: nothing happens exactly the same way twice. The second epistemological assumption is that physical or logical laws do not determine historical events. Historical events are subject to chance and could have happened differently or not at all, because they involve people who could have made different choices. The final epistemological assumption is that one can never perfectly describe a past event: between our descriptions and the event itself there will always be some irreducible difference. This difference is the epistemological corollary of the ontological assumption of a gap between our present experience and historical events.

Together, these ontological and epistemological assumptions lead to the view that the goal of history is to produce descriptions of unique events in the past, and that these descriptions should correspond to those events as closely as possible, though they can never correspond perfectly. To this unreflective view of history Ricœur contrasted an alternative set of views. These views arose in different disciplines and traditions, but they share a mistrust of the unreflective view.

4.4 Historical Events as Concepts

The first to question the presuppositions of the unreflective view of historical events were philosophers of history. These philosophers agreed that the past was out of reach of present-day experi-

19. Ricœur, *Time and Narrative*, 96–97.

ence, but they disagreed with the idea that this past already consisted of events. Oakeshott characterized the unreflective view of history-as-portrait as follows:

> History [as past], it will be asserted, is an "objective" world, a world of past events to be discovered, unearthed, recaptured; it consists of what actually happened, and that (at least) is independent of what we think; it is a world, not of ideas, but of events.[20]

But, he argued, this view is false. Historians do not simply arrange in sequence descriptions of events unearthed from the past. Things did happen in the past, but those happenings are not directly conveyed by pieces of evidence to the historian as historical events. For something to become a historical event it must be incorporated into a system of present-day understanding in the mind of a historian. Historians infer historical events; the events are not "what really happened" but "what the evidence obliges us to believe."[21] Historical events are ideas about the past. They are not the raw materials of history-as-practice, but its products.[22]

Again, to conceive of historical events as the products of historical practice is not to deny that things happened in the past. But even to think of them as "things that happened" is already to fit them into a present-day system of ideas. This system of ideas constrained by the premises and methods of history-as-practice, which aims to produce a body of intersubjectively agreed-upon fact that we call history: an imagined representation of the past. The past is not imaginary, but we can only access it through imagination. The imagined course of events can only be compared to alternative imaginations and never to some "actual" course of events. As Oakeshott argued,

> In so far as history [as portrait] is a world of facts (which will scarcely be denied), it is a world of ideas, and a world which is true or false according to the degree of its coherence. The distinction between history as it happened (the course of events) and history as it is thought, the distinction between history itself and merely experienced history, must go; it is not merely false, it is meaningless. The historian's business is not to discover, to recapture, or even to interpret; it is to create and to construct.[23]

In other words, it is a mistake to view the past as a kind of history: "history as it happened" as opposed to "history as it is thought." The past is not history, because history is a practice engaged in, and a set of ideas produced by, people in the present. The problem with regarding the past as a kind of history is that it implies that historians can judge the truth or quality of a historical portrait by comparing it to an independent standard: "what really happened." The past cannot serve as that standard, because it no longer exists. The best historians can do is to compare various portraits and try to decide which is more coherent, or to derive new, more coherent portraits by trying to resolve incompatibilities.[24] In doing so historians may resort to or reject various ideas about the past. Those ideas will be shaped by newly discovered documentation, but even in the absence of new documentation, they will change as our culture changes. History-as-practice is the process

20. Oakeshott, *Experience and Its Modes*, 92.
21. Ibid., 112.
22. Ibid., 125.
23. Ibid., 93.
24. Terry Nardin, *The Philosophy of Michael Oakeshott* (2001), 148–149.

of constructing, reconsidering, and reworking a system of ideas about the past and not simply a matter of gradually adding new knowledge to produce an increasingly accurate portrait.

A similar argument against viewing the past as a kind of history was made by Arthur Danto, in the form of a thought experiment. Suppose that we *did* have access to an "actual" course of events: "history as it happened." This history would consist of descriptions of "absolutely everything that happened," in the order it happened, thus providing the "whole map of the Past."[25] A complete account of everything that happened in the past would still not obviate the need for historiography, Danto argued, because the role of the historian is not simply to recount factual data about the past, but to represent the significance of episodes in the past from the perspectives of the present. In other words, historians do not simply tell us what happened but tell us why what happened is significant. Just as a map does not simply reproduce some territory, but organizes an understanding of that territory by picking out particular features as significant, so are "historians ... obliged to aim, not at a reproduction but at a kind of organization of the past," and this organization is "logically dependent upon topical interests which motivate historians."[26]

Ricœur summarized the philosophers' critiques of the unreflective view of history in two points.[27] The first point is that historical knowledge is a present-day understanding of the past, and such an understanding presupposes present-day concerns that define significance. In other words, history-as-practice does not simply attempt to reproduce the past, but to establish some kind of relation between the past and what is meaningful to us in the present. Because what is meaningful to us in the present is constantly changing, our criteria for significance are also constantly changing. It is this kind of change and not only the discovery or refutation of historical evidence that results in new historiographical conclusions. This is not to say that evidence is irrelevant to changes in our ideas about the past, only that the two are mutually dependent. The methods and procedures of historical practice aim to establish relations between the past and the constantly changing concerns of the present by asking questions that reflect those concerns, and by studying documents including material culture to answer those questions by making inferences about the past. These inferences are historical events.

The second point is that even if one could travel back in time and observe first-hand any past happening, those "raw" observations would not alone constitute historical knowledge. As Ricœur explained, "when it was present, this past was like our present, confused, multiform, and unintelligible."[28] Present experience alone cannot constitute historical understanding. Geoffrey Bowker illustrated this point using the example of a soldier's experience of war:

> It is through operations on sets of traces that I understand an event in which I take part ... The soldier ... cannot have the experience of the war he is waging or the battle he is fighting because the only "global" traces of the war are inscriptions—notably, maps and statistics. There is no scalable observation that moves from "I was in a copse hiding behind a tree and was terribly confused" to "I took part in Napoleon's bold attack on the left flank." In this case, where is the experience of the war? When we experience a war, we are relying on the aggregations of other experience to ground and

25. Danto, *Narration and Knowledge*, 148.
26. Ibid., 111.
27. Ricœur, *Time and Narrative*, 99.
28. Ibid.

shape our experience.[29]

The "operations on sets of traces" through which one achieves historical understanding are the methods and procedures of historical practice. The products of these operations are "imaginative schemata of historical change"[30] that make intelligible the confused flux of actual experience. These imaginative schemes, constructed on the basis of present-day concerns, consist of webs of related events. Historical events, then, are not things that existed in the past. They are ideas or concepts, units of the organizing schemes that constitute historical knowledge. A historical event only exists in the context of some such organizing scheme. In this sense, historical events are no different from any other concept. What distinguishes historical events as a particular kind of concept is the structure of the organizing schemes of which they are components.

4.5 Periods and Passages of Events

If the nature of historical events as concepts depends upon the structures of the organizing schemes of which they are components, then what are those structures? This was a question that Michael Oakeshott sought to answer. Oakeshott saw events as central to understanding history as a mode of inquiry. He wanted to better understand what they are, how they are constructed and how they come to be grouped together in particular ways. He developed a very precise vocabulary to help him untangle the answers to these questions.[31]

Oakeshott began by observing that historical inquiry recognizes certain objects—documents or other material culture—as "exploits, human doings which have been performed, utterances which have been pronounced, artefacts which have been made, fragments of the bygone purposive engagements of their perhaps unknown authors."[32] Historians seek to understand these documents by relating them to other documents. One way to do this is do discern from a set of documents a common language or symbolism or genre: inferred conventions which suggest some common practice.

But a document is more than just an instance of some common practice; it also has a specificity that "may be resolved into the questions, who? when? and where? which may be answered with a name, a date and a place."[33] These answers are less important in and of themselves than as links to other documents. Dates and places and names pick out sets of other documents, and a historian may recognize some of these other documents as related to the first document, not just as other instances of the same kind practice, but as part of the same specific complex of purposive activity.

So historians study documents, and they come to understand these documents by relating them to other documents. They relate documents to one another either as instantiations of some inferred general practice, or as parts of some specific activity involving some time and place and people. But understanding documents is less an end in itself, than a means to another end: to infer something about the past. The inferences made on the basis of a record of related documents are, according to Oakeshott, of two kinds. The first kind of inference is a historical *occurrence*, and the

29. Geoffrey C. Bowker, *Memory Practices in the Sciences* (Cambridge, Massachusetts: MIT Press, 2005), 5.
30. Mink, "The Autonomy of Historical Understanding," 45.
31. Oakeshott, *On History and Other Essays*, 49–104.
32. Ibid., 51.
33. Ibid., 55.

second kind is a historical *event*. The distinction that Oakeshott drew between occurrences and events is the key to Oakeshott's model of how historians organize history.

Oakeshott defined a historical occurrence as

> the net outcome of divergent and perhaps conflicting [documents]: an anatomized fragment of past circumstance. It is the conclusion of an enquiry designed to infer from surviving utterances and artefacts what they do not and cannot themselves tell him, namely, what has not itself survived but did in fact happen.[34]

An occurrence, then, is the inferred "specific complex of purposive activity" that relates some set of documents. Possible relations among documents are suggested by patterns of dates and places and names, but when a historian infers an occurrence only some of these possible relations are actualized. When some relations among documents are actualized as an occurrence, the dates and planes and names then function as mnemonics for that occurrence.

However, just as documents cannot be understood in isolation but only in relation to other documents, so an occurrence cannot be understood in isolation but only in relation to some set of occurrences to which it is related. Oakeshott called such a set a historical *situation* and further explained that "an historical occurrence is a rudimental historical situation, and an historical situation is a composition of notionally contemporaneous, mutually related, historical occurrences."[35]

Situations are composed of occurrences, which are themselves situations, and together they constitute a recursive conceptual structure that enables historians to examine and analyze the past as broadly or as narrowly as they wish. Historical situations, Oakeshott claimed, are "the subjects or the conclusions of an historical enquiry."[36] To clarify the concept, Oakeshott gave a number of examples of historical situations from actual works of history:

> Pauline or Edessan Christianity, the *Völkerwanderung* of the third and fourth centuries, Alexandrian Platonism, "the Epic poetry of the early middle ages," "the formal structure of English feudal society around AD 1200," "marriage in Christian history," "the civilization of Renaissance Italy," "a sketch of English public law at the death of Henry VII," "the Reformation in Zürich," "the scientific revolution," "the *mentalité* of Affective Individualism in seventeenth century England," "the condition of England in 1685," "the Scottish Enlightenment," "the tyranny of Greece over Germany," "the French Revolution," "Jeffersonian democracy," "logical positivism."[37]

These names and descriptions should be recognizable as names or descriptions of what I have been calling periods. Each name or description in the list identifies a point of view on the past developed by a specific historian, "an argued invitation to imagine the intricacies and the coherence of a condition of human circumstance which has not survived."[38] Names or descriptions like

34. Ibid., 57–58.
35. Ibid., 58.
36. Ibid., 59.
37. Ibid., 58–59.
38. Ibid., 63.

this appear as the titles of books or individual chapters of books or as the names of exhibitions or films. We see such names and phrases in back-of-the-book indexes, and also in subject catalogs.[39]

To this kind of history "composed of carefully anatomized situations of various magnitudes, durations and constitutions, themselves composed of mutually and conceptually related occurrences" Oakeshott contrasted a second kind of history, a history composed of passages of historical events.[40] A historical event is, like a historical occurrence, "inferred from surviving record" and "alleged to be what was actually happening." But, unlike an occurrence, an event is understood as an "outcome of what went before," where "what went before is also understood to be itself composed of nothing but historical events."[41]

The difference is in how some "fragment of past circumstance" is related to other fragments. If the fragments are mutually related to one another, for example by being collected together as instances of a theme, then according to Oakeshott they are occurrences. If on the other hand the fragments are related seriatim, each being an outcome of some earlier fragments, then they are events. Oakeshott used different terminology to emphasize that he was not just distinguishing two different ways of relating the same concepts. Because concepts are what they are by virtue of the ways they are related to other concepts—because the system of relationships defines the concepts—then the two different ways constructing relationships results in two different kinds of concept.

The fundamental distinction that Oakeshott wished to make has to do with the way change is represented. Historical situations are snapshots that freeze time into a static array of relationships. Oakeshott often used the verb "anatomize" to characterize the process of composing a portrait consisting of historical situations. One is led to imagine a dissecting table upon which the various muscles, tendons and bones of history and the connections among them are made clearly visible, but all motion and life have been arrested. A passage of historical events, on the other hand, strives to represent that motion and life by weaving a continuous pattern. Passages of historical events constitute contingent but significant relationships of change over time. Each event is related to some previous event that has been selected by the historian as significant for understanding how the later event came to be. The historian's role is "to detect the significant in the merely antecedent and thus to transform a subsequent into some kind of a consequent."[42]

Oakeshott's distinction between passages composed of significantly related events and situations composed of mutually related occurrences ultimately rests on a distinction between the two classes of relationships constructed by the historian. The first class includes "comparative" relations based on conceptual similarity, like the relation between European and Japanese "feudalism." This class also includes statistical correlations of the kind discerned by quantitative historians, as well as metaphors like "The Napoleon of New York."[43] To this class Oakeshott contrasted a second class of relation, which he called "contingent." Oakeshott characterized contingent relations as contiguous, circumstantial, and consequential. Contiguous passages of historical events are

39. But a historical situation should not be confused with the kind of historical subject found in a subject catalog. A historical situation is a subject, but it is the subject of a single process of historical inquiry as performed by a single historian or group of collaborating historians. A historical subject in a subject catalog is a generalization about historical situations, made in order to bring together the individual works that present those situations.

40. Oakeshott, *On History and Other Essays*, 65.

41. Ibid., 68.

42. Ibid., 78.

43. H. Paul Jeffers, *The Napoleon of New York: Mayor Fiorello La Guardia* (New York: John Wiley & Sons, 2002).

presented as adjoining one another in time and space, while things in comparative, statistical and metaphorical relations do not necessarily "touch" one another in that way. The relations in a passage of historical events are circumstantial in that they depend on the particular circumstances being related and are not logically necessary: things could have turned out otherwise. And finally they are consequential because they made a difference: later events would not have been what they were had the earlier events not happened. If an event were not consequentially related to ensuing events, there would be no reason to include it.

To summarize, Oakeshott had two important insights. The first insight was that historians choose how to compose a whole out of individual fragments, *and* they choose the shapes and scales of those fragments. In other words, it is *not* the case that the fragments are empirically given by the past and the role of historians is simply to choose how to put them together. The only things given by the past are documents and other bits of material culture. These have to first be recognized as documents of a certain kind and then "made to interpret and criticize one another" in order for historians to construct the fragments of past circumstance that relate them.[44]

The second insight was that historians have a great deal of flexibility in choosing how to represent the past, because the fragments and wholes have a recursive structure. A whole consists of fragments, but one historian's fragment may be another historian's whole. There are no inherently fragmentary or whole phenomena, because their forms are freely chosen representations.

But in addition to these two insights, Oakeshott also wished to make a normative distinction between two approaches to producing history. The first approach is to aggregate mutually related fragments under some unifying concept. This way of relating fragments, Oakeshott argued, produces historical situations: periods. But Oakeshott considered periodization, as an approach to producing history, to be inferior to the arrangement of fragments in successions of contingently related episodes: narratives. Narrativization, Oakeshott argued, supersedes mere periodization.

Hayden White illustrated the kind of difference Oakeshott had in mind in his comparison of Jacob Burckhardt's *Culture of the Renaissance in Italy* to Leopold von Ranke's *History of Germany during the Age of the Reformation*. White observed while Ranke showed "how one thing led to another, or how one set of events engendered another set," Burckhardt simply identified a theme—individualism—and then pointed to "the instances of individualistic expression to be found in the time and place under study."[45] In Oakeshott's view, Ranke narrated a passage of historical events while Burckhardt simply anatomized a historical situation. White, however, argued against such a distinction. In White's view, the difference between Ranke and Burckhardt was not that one told a story and one did not, but that they told different kinds of stories. He maintained that Burckhardt's work "does have a story of a sort, the kind of story that is all middle," the kind of story White identified as ironic satire.[46] In the following section I present a different argument for an expansion of the notion of narrative beyond the kind of story that clearly shows "how one thing led to another."

44. Oakeshott, *On History and Other Essays*, 54.
45. Hayden White, "The Structure of Historical Narrative," *Clio* 1, no. 3 (1972): 6–10.
46. Ibid., 10.

4.6 Expanding the Notion of the Historical Event

Oakeshott's normative distinction between passages of events and historical situations was in part a reaction to a historiographical movement which sought to introduce to the practice of history methods and concepts from the (quantitative) social sciences. Oakeshott considered this movement to be profoundly confused, because his philosophy of history rested upon the idea that historical understanding is categorically different from scientific understanding.[47]

But despite Oakeshott's antagonism toward its ideas, the historiographical work done under the banner of this movement—the so-called Annales School—was very much in agreement with Oakeshott's insights. Like Oakeshott, Annales historians repudiated the idea that historical documents express propositions about past occurrences, propositions that the historian must accept as true or reject as false. Instead, as Oakeshott proposed, Annales historians treated documents as masses of material to be arranged and analyzed in various ways to yield inferences. More importantly, the Annales historians fully embraced the freedom to choose the forms of events and periods to fit the problems they studied. In doing so, they radically expanded the scope of the historical event.

The Annales School was named after a journal founded by Marc Bloch and Lucien Febvre in 1929. The journal was founded as a reaction against the dominant historiographical trends of the time, specifically the tendency to focus on national or political histories drawing upon official archives. The Annales School historians, seeking a wider scope for history that included all kinds of social, cultural, psychological and even geographical change, aligned themselves with the emerging fields of economics, sociology, and anthropology, They urged historians to use the theories and concepts of the social sciences to define new kinds of problems and to find new kinds of sources and ways of using those sources to answer those problems. Perhaps above all, they called on historians to move beyond national and political histories chronicling the exploits of great men, which they derided as "event history."

Event history was famously criticized in an essay by a member of the so-called "second generation" of the Annales School, Fernand Braudel.[48] Braudel, in keeping with the desire of the Annales historians to widen the scope of history, argued that historians should recognize a wider range of time spans beyond that of the event. The crux of his argument lay in his definition of *event*, which he limited to something that happened over a short span of time:

> Take the word *event*: for myself I would limit it, and imprison it within the short time span: an event is explosive, a "*nouvelle sonnante*" ("a matter of moment") as they said in the sixteenth century. Its delusive smoke fills the minds of its contemporaries, but it does not last, and its flame can scarcely ever be discerned.[49]

As Braudel saw it, traditional history focused on short time spans because historians and their audiences can easily relate to events that are "proportionate to individuals, to daily life, to our illusions, to our hasty awareness."[50] But by focusing on the easily understandable short time span,

47. Oakeshott's arguments that human inquiry consists of separate, autonomous modes pervade all his philosophical writings, but are most clearly laid out in Oakeshott, *Experience and Its Modes*.

48. Fernand Braudel, "History and the Social Sciences: The *Longue Durée*," in *On History*, trans. Sarah Matthews (Chicago: University of Chicago Press, 1980), 25–54.

49. Ibid., 27.

50. Ibid., 28.

the historian missed the opportunity to discern and explain longer, slower processes of historical change. These processes called for recognition of a range of historical time spans, which Braudel loosely divided into three categories. The first category was the aforementioned event or short time span. The second and third categories, borrowed from the social sciences, were the *conjuncture* and the *longue durée*.

The idea of the conjuncture was borrowed from economics and economic history. It is a concept intended to integrate a number of correlations observed across multiple quantitative time series. Typical examples of conjunctures include descriptions of economic cycles such as "booms" or "depressions." Though the conjuncture originated in economics, it had spread to history more generally as historians began adopting quantitative techniques. Braudel recognized not only economic conjunctures but also conjunctures describing cycles of change in societies and civilizations, science and technology, political institutions, and intellectual history.[51] These are cycles that take place over spans of "ten, twenty, fifty years at a stretch."[52]

Much longer spans of time were what Braudel called the *longue durée*. The *longue durée* is the time necessary to discern changes in *structure*. Structure was another idea borrowed from the social sciences, this time from sociology. Braudel defined *structure* as "an organization, a coherent and fairly fixed series of relationships between realities and social masses."[53] Structures define limits or constraints on human development, whether these constraints are geographical, biological, economic or psychological. Where sociologists were content to perceive and describe structures in society, historians of the Annales School were interested in understanding how such structures changed. For structures to exercise constraints on human development over time, they must be relatively stable. But, as Braudel emphasized, they do change, even if the change must be measured over centuries. If there are structures that do not seem to change, for example those structures of kinship systems marked by features such as the prohibition of incest, such structures belong to what Braudel called the "excessive *longue durée*" that is beyond the proper scope of history.[54]

Because Braudel urged historians to expand their scope beyond the (short) event, his arguments are often interpreted as arguments against narrative history more generally. If stories consist of events, it would seem to follow that a history which focused instead on conjunctures and the *longue durée* would then no longer be a story. Yet Ricœur made a convincing case that one need not equate events with short time spans and that Braudel's organizing schemes can also be understood as narratives.

The first volume of Ricœur's *Time and Narrative* is devoted to developing the thesis that all historical understanding is derived from our competence to understand narratives. This competence is grounded in the kind of taken-for-granted understanding we have of agents, actions, motives, goals, and consequences (see subsection 2.2.1). In the most basic case, these agents are people and their actions are the kinds of events Braudel associated with the short time span. But narrative understanding, Ricœur argued, is broader than this; it is also "the activity that produces plots in relation to every sort of static structure, achronological paradigm, or temporal invariant."[55] Ricœur used the term *plot* here in the sense established by Veyne, who defined it as

51. Ibid., 30.
52. Ibid., 27.
53. Ibid., 31.
54. Ibid., 47.
55. Ricœur, *Time and Narrative*, 33.

> a slice of life ... that the historian cuts as he wills and in which facts have their objective connections and their relative importance: the beginnings of feudal society, the Mediterranean policy of Philip II or only one episode of that policy, the revolution of Galileo. The word "plot" has the advantage of reminding us that what the historian studies is as human as a play or a novel ... That plot is not necessarily arranged in chronological order; like an interior drama, it can unfold from one plane to another ... The plot may thus be a transversal cut of different temporal rhythms, a spectral analysis.[56]

In other words, plots are a means of understanding not just successive short episodes but also structures like societies and policies. A plot is an organizing scheme, and as such can be used to organize explanations of "cross-sectional" or non-episodic history. Thus even histories that do not "tell a story" in the traditional sense are intelligible to us by virtue of our ability to understand plots.

Ricœur illustrated the narrative character of so-called "non-narrative" history by closely examining Braudel's most influential work, *The Mediterranean and the Mediterranean World in the Age of Philip II*.[57] *The Mediterranean* exemplifies Braudel's approach to history, juxtaposing description and explanation on several different time scales. The work is divided into three parts. The first part, entitled "The Role of the Environment," tells the story of the Mediterranean in terms of its geography, climate and physical location: its peninsulas, its seas and coasts, its position between Europe, the Sahara, and the Atlantic, and so on. This is the part in which time is measured in terms of the *longue durée*. The second part, entitled "Collective Destinies and General Trends," unfolds time at the scale of the conjuncture, describing and explaining the Mediterranean economies, empires, societies and civilizations of the 15th and 16th centuries. Ostensibly it is only the final part, "Events, Politics and People," that consists of the kind of "event history" that characterizes traditional narrative. Yet as Ricœur demonstrated, the first two parts of *The Mediterranean* are also full of "short time span" events. Though Braudel wished to describe and explain conjunctures and structures, he often could only do so by recounting individual "dates, battles, and treaties."[58]

But the appearance of short time span events throughout the first two parts is not the only reason for understanding these parts as narrative. Dates, battles and treaties aside, a story about geography and climate and the physical environment is still a story. In the first part of *The Mediterranean*, the protagonist of the story is the physical environment of the Mediterranean. Braudel did not provide a theory explaining this environment in terms of geological or meteorological laws. He simply told a story with a beginning and an end that explained and described how the change from beginning to end took place.[59] This story too has a plot, as does the work as a whole:

> What frames the plot of the Mediterranean? We may say without hesitation: the decline of the Mediterranean as a collective hero on the stage of world history.[60]

56. Veyne, *Writing History*, 32.
57. Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, trans. Siân Reynolds (Berkeley: University of California Press, 1995).
58. Ricœur, *Time and Narrative*, 213.
59. Anton Froeyman, "Concepts of Causation in Historiography," *Historical Methods* 42, no. 3 (2009): 124.
60. Ricœur, *Time and Narrative*, 215.

In other words, to tell story on a longer time span is still to tell a story, even if the figures that populate the story are not people but larger and more abstract characters, what Ricœur called "quasi-characters."[61] Stories told at these longer time spans are still accounts consisting of chains of events, but the events are no longer brief and explosive. What must be kept in mind is that, contrary to the unreflective view, "'events' are not the raw material out of which narratives are constructed; rather an event is an abstraction from a narrative."[62] Acknowledging that events abstracted from long time span and cross-sectional narratives do not fit our prototypical image of an event, Ricœur called them "quasi-events":

> By *quasi-event* we signify that the extension of the notion of event, beyond short and brief time, remains correlative to a similar extending of the notions of plot and character. There is a quasi-event wherever we can discern, even if only very indirectly, very obliquely, a quasi-plot and quasi-characters.[63]

Events are products of the historian's emplotment, and even histories that do not recount the exploits of human heroes are organized as plots. By inventing new kinds of plots, the historians of the Annales School expanded the concept of the historical event. It is true that the Annales School claimed to reject "event history." But, as Veyne wrote, if one can concede that Annales School history is "non-event history, it is only because "non-events are events not yet recognized as such."[64] By writing histories of these non-events, the Annales historians turned them into events, adding them to what Veyne called the "eventworthy field."[65] As Ricœur explained, this way of looking at the Annales approach

> de-dramatize[s] the conflict between event-history and that of the long time-span ... To say that the non-eventful concerns events not yet considered as such seems to me to claim that Braudel's long time-span is eventful. This condition has nothing shocking about it if the plot is the measure of what is eventful; from then on, the non-eventful merely marks the gap between the undetermined field of events and the domain already furrowed by different plots.[66]

Thus we might expect the field of events to expand without limit, not only because the past that historians portray is ever expanding, but also because historians are constantly developing new questions to ask and constructing new plots to answer them. These plots combine both configurational and episodic relations, confounding the normative distinction Oakeshott wished to make between periods (historical situations) and narratives (passages of events). But the Annales historians demonstrated that Oakeshott was correct about the recursive structure constituted by events and periods. They reinvented periodization by multiplying the forms periods and events could take, the criteria by which they could be defined, and the ways they could relate to one another, in order to tell new histories that addressed new questions:

61. Ibid., 197. See also section 2.2.2.
62. Louis O. Mink, "Narrative Form as a Cognitive Instrument," in *The Writing of History: Literary Form and Historical Understanding*, ed. Robert H. Canary and Henry Kozicki (Madison: University of Wisconsin Press, 1978), 201.
63. Ricœur, *Time and Narrative*, 224.
64. Veyne, *Writing History*, 19.
65. Ibid., 36.
66. Ricœur, *The Contribution of French Historiography*, 35–36.

> Beneath the rapidly changing history of governments, wars, and famines, there emerge other, apparently unmoving histories: the history of sea routes, the history of corn or gold-mining, the history of drought and of irrigation, the history of crop rotation, the history of the balance achieved by the human species between hunger and abundance. The old questions of the traditional analysis (What link should be made between disparate events? How can a causal succession be established between them? What continuity or overall significance do they possess? Is it possible to define a totality, or must one be content with reconstituting connexions?) are now being replaced by questions of another type: which strata should be isolated from others? What types of series should be established? What criteria of periodization should be adopted for each of them? What system of relations (hierarchy, dominance, stratification, univocal determination, circular causality) may be established between them? What series of series may be established? And in what large-scale chronological table may distinct series of events be determined?[67]

But how do historians use language to construct these "series of series" of events, to tell the history of *x*? To answer that we must turn to the work of Arthur Danto.

4.7 Narrative Sentences and Temporal Structures

Like Oakeshott, Danto was interested in history as a distinct mode of inquiry, but unlike Oakeshott he was not committed to cleanly separating history from science. Danto also paid far more attention than Oakeshott did to historians' language. Danto sought to analyze how historians write about the past, in order to understand how their language structures their conceptions of the past. His major contribution was a model of the structure of historical narrative.

The fundamental unit of Danto's model is the *narrative sentence*. Narrative sentences "refer to at least two time-separated events though they only *describe* (are only *about*) the earliest event to which they refer."[68] For example, consider the sentence *Emanuel Goldberg's invention of the Statistical Machine anticipated Vannevar Bush's imagination of the Memex*.[69] This sentence refers to two events. The first event is Emanuel Goldberg's invention, circa 1927, of a machine for searching microfilm documents. The second event is Vannevar Bush's drafting, circa 1939, of a soon-to-be-famous essay speculating about the future uses of a machine for searching microfilm documents. The sentence describes the earlier event as anticipating the later event. Thus it is a narrative sentence, according to Danto's definition.[70]

By means of narrative sentences, events are collected into periods, which Danto called *temporal structures*. Danto pragmatically defined a temporal structure as the thing designated by "any term which can sensibly be taken as a value for *x* in the expression 'the history of *x*.'"[71] His more

67. Michel Foucault, *The Archaeology of Knowledge*, trans. A. M. Sheridan Smith (New York: Pantheon, 1972), 3–4.

68. Danto, *Narration and Knowledge*, 143.

69. Michael Buckland, *Emanuel Goldberg and His Knowledge Machine: Information, Invention, and Political Forces* (Westport, Connecticut: Libraries Unlimited, 2006).

70. It is not clear why Danto insisted that a narrative sentence *only* describes the earliest event. It would seem that any narrative sentence also describes the later event.

71. Danto, *Narration and Knowledge*, 167.

analytic definition of temporal structure rested on the notion of a *project*. A project describes some ongoing activity in terms of the outcome it is intended to bring about. For example, I might observe a graduate student sitting at a desk, typing, consulting notes, reading parts of books, and so on. If I ask someone, "What is that student doing?" I expect as an answer not a literal description of these activities, but something like "He is writing a dissertation." *Dissertation writing* is a project constituted by a number of individual actions (reading, note-taking, typing) that can be described more literally.

When a person or group of people are engaged in activity describable by means of a project, they may not constantly be doing things that directly contribute to the project. So when our graduate student is not reading, note-taking, typing and so on, he may be sleeping, caring for his children, cooking or riding the bus. Nevertheless, it is not incorrect to describe the student as "writing a dissertation." *Dissertation writing* is a project that can correctly (if unfortunately) continue for a very long period of time, despite the fact that the individual behaviors that constitute dissertation writing may be exhibited discontinuously over that time.

It is this kind of discontinuous project that Danto labeled a temporal structure, and which I call a period. Any history of x assumes some criteria for deciding which events count as part of x, just as we have some criteria for deciding which behaviors count towards dissertation writing. But the x described by means of those events is a whole greater than the individual events collected, just as "writing a dissertation" may describe a significant period of someone's life and not only intermittent segments of behavior.

Furthermore, the criteria for deciding how to group events into periods are not logically given but depend upon the interests and aims of the individual historian:

> Temporal structures are, of course, *ad hoc* in some degree. The identical event may indeed be a constituent in any number of of different temporal structures: E may be collected with any number of otherwise disjointed collections of events into distinct temporal wholes. Thus, our description of E may accordingly vary as we group it with different collections of events into different temporal structures. Thus to describe E with a narrative sentence—to relate it to some later event E'—is to locate both E and E' in the same temporal structure. But no *a priori* limit may be set to the number of different narrative sentences, each of which truly describes E, and hence no limit may be set to the number of different temporal structures within which historical organization of the Past will locate E.[72]

A historian's sentences construct events and relate them to one another within periods, and there is no limit to the number of different periods that may differently emplot events.

4.8 Periods and Events

Clearly, periods and events are complex concepts, and not every aspect of their use in history can be captured by a single theory. Instead of endorsing one of the theories discussed above or developing a new theory, here I simply summarize the theoretical points most relevant to the problem

72. Ibid.

of modeling events and periods for knowledge organization. These points are formalized and discussed further in chapter 6.

There are two alternative strategies for representing change over time. One can simply assert that some change happened. When one does this, one represents that change as an event. The event may be of any duration and scale: if I simply state, "Early humans migrated to the Americas over thousands of years," I have represented that happening as an event. If on the other hand I *narrate* some happening, then I represent it as a period. Again, a period can be of any scale or duration: if I tell a story of the terrorist attacks on the United States that begins at 6:02 a.m. on September 11, 2001 and ends at 11:30 p.m. on the same day, I have represented what happened as a period.

Every individual narrative structure articulates its own period concept, which may share a name with other period concepts articulated in other narratives. When we use those names, for example *the Renaissance*, we are usually not referring to any one specific narrative but a portfolio of narratives. The contents of this portfolio differ depending on time, place, and social context. The portfolio is constantly being added to by historians, and historians produce their narratives under its influence.

When one narrates history, one articulates a period (or periods), but one also produces events, because stories cannot be told without events. Sets of events constitute periods. Periods may be composed of contingent passages of events, as in traditional narrative history, but they may also consist of events emplotted in less traditional ways. Events may be related in many ways beyond causation and still be treated as constituting a narrative (or quasi-narrative) structure that articulates a period.

Danto provides an simple and elegant account of how periods are composed of events related by narrative sentences. His account does not rely upon any restriction of the types of relations that may hold among events; it simply requires that we can say that they are collected in some way. But it also requires that we have some way of making sense of the notion of the "same" event belonging to different periods. If events are freely chosen by historians, under what conditions can we claim that two historians have chosen the "same" event? I discuss this issue and related ones in more detail in the following chapters.

Chapter 5

Requirements for Historical Event Directories

> As with so many phenomena of time, recurrent combinations are perceptible as such only when they cannot affect us any more—when they are imprisoned so to speak in the past, which is the past just because it is disinfected. To try to map our tomorrows with the help of data supplied by our yesterdays means ignoring the basic element of the future which is its complete non-existence. The giddy rush of the present into this vacuum is mistaken by us for a rational movement.
>
> Vladimir Nabakov, *Bend Sinister*

In section 3.3 I introduced the term *semantic tool* to refer to any instrument that can inform its users about concepts of interest in some domain, various names or terms associated with those concepts, and relationships among concepts. Semantic tools exist for persons and for places in the form of biographical dictionaries and place name gazetteers respectively. Here I consider the possibility of a semantic tool for historical periods and events—an *event directory*—that organizes temporal concepts found in historical discourse.

While semantic tools of various kinds are well established, there have been few attempts to build such tools for periods or events. Vivien Petras and her collaborators proposed a simple standard for "time period directories" that identify named historical periods and associate them with locations and date ranges.[1] They constructed an example directory with about two thousand entries by harvesting event and time period names from Library of Congress Subject Heading authority records, and demonstrated how the directory could be used to search and browse the Library of Congress catalog using maps and timelines. In a similar project, Martin Doerr and his collaborators created a multilingual thesaurus of time period names with the objective of helping to resolve disagreements about the definitions of time periods among different communities of archaeologists.[2]

1. Vivien Petras, Ray R. Larson, and Michael Buckland, "Time Period Directories: A Metadata Infrastructure for Placing Events in Temporal and Geographic Context," in *Proceedings of the 6th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL)* (Chapel Hill, North Carolina: ACM Press, 2006), 151–160, doi:10.1145/1141753.1141782, http://portal.acm.org/citation.cfm?doid=1141753.1141782.

2. Martin Doerr, Athina Kritsotaki, and Steven Stead, "Which Period Is It? A Methodology to Create Thesauri of Historical Periods," in *Beyond the Artefact: Digital Interpretation of the Past*, ed. Franco Niccolucci and Sorin Hermon

To create an event directory one must create formalized representations of temporal concepts and their relations, and organize them such that they can be used in various ways. These ways of using an event directory fall into two categories: *document-oriented* uses and *concept-oriented* uses. When an event directory is used in a document-oriented manner, the focus is on finding and contextualizing historical documents. When the event directory is used in a concept-oriented manner, the focus is on orienting oneself in historical time, much as a map helps one orient oneself in space. Drawing on my analysis of temporal concepts in history in chapter 4, in this chapter I identify a number of more specific functional requirements for event directories.

5.1 Individuation

The first requirement is *individuation*. To be able to individuate entities is to be able to distinguish them from others. Any system that consists of individual records describing entities of interest presumes some agreed-upon way of individuating those entities. This may seem obvious, but in practice individuation is far from simple. Bibliographic organization, for example, is plagued by the problem of when to consider two documents to be the "same" document or "different" documents. The problem is worse for purely conceptual resources such as events. An event directory consisting of records identifying and describing events must employ some principles to individuate events. The principles must result in records with values sufficiently different that a user can distinguish between them and select the one that he wants.

It is useful to distinguish between *system* individuation and *user* individuation. System individuation involves assigning identifiers to records. An identifier is a sequence of letters, numbers or symbols that is guaranteed to be unique within the scope of a given system. One way of ensuring that identifiers are unique is to have centralized control over the creation and assignment of identifiers. The central controller can make sure that each new identifier is different from all previous identifiers.

Centrally controlling identifiers is simple for small systems, but it grows increasingly difficult as systems grow larger. For systems with global scope, centralized control of identifiers is an unacceptable limitation on scalability. Thus systems with global scope take a decentralized approach to creating identifiers. For example, The World Wide Web identifies resources using Uniform Resource Identifiers (URIs). URIs on the Web achieve uniqueness by being delegated through a hierarchical system. Instead of a central controller being responsible for all URIs, controllers at each level in the hierarchy are responsible for ensuring uniqueness at their level.[3] Another decentralized approach to creating identifiers is that of Globally Unique Identifiers or GUIDs. GUIDs use mathematical techniques to generate strings of numbers that are guaranteed to be unique, even when created by different, uncoordinated computers.

Being able to create and assign identifiers does not solve the problem of individuation, however. A user may be able to examine identifiers and conclude that two records are different from the system's perspective.[4] But the user may not be able to reach a conclusion as to whether *she*

(Budapest: Archaeolingua, 2010).

3. Web URIs rely on both the global system for assigning domain names to servers and standards for assigning names to individual files on servers. URIs within a given domain are controlled by the owner of that domain, who in turn can delegate URIs to managers of individual servers within that domain.

4. To talk of examining the identifiers of records to determine whether they are different is somewhat backwards,

wishes to treat two records as different unless there is some means of *meaningfully* distinguishing between those records. This is user individuation, and it requires the display of some attributes or relations of records that are meaningful to the user.

One often encounters the distinction between system and user individuation on the Web. Consider how many websites handle the `www` subdomain. For example, one can load the University of California, Berkeley home page by entering into the address bar of one's Web browser either `http://www.berkeley.edu/` or `http://berkeley.edu/`. These are two different URIs, so despite the fact that they result in identical displays in a Web browser, as far as the Web is concerned there are two different resources. Most Web users, however, will want to say that these are the same Web page. In this case these users are using a different principle of individuation—the content of the Web page displayed—than the system does. [5]

There is no clear distinction between system and user individuation in traditional name authority files. Although a Library of Congress name authority record is identified by a unique "control numbers," it is also identified by a unique "heading": a form of the name that has been manipulated to be unique within the authority file yet still meaningful to users. Usually this manipulation involves adding birth and (if applicable) death years to a person's name to distinguish him or her from other persons with the same name, so that `Smith, John, 1580-1631` is differentiated from `Smith, John, 1747-1807`.[6] The heading conflates the system and user individuation functions.

As Karen Coyle has pointed out, this conflation is problematic for a number of reasons.[7] First of all, manipulating names to be unique becomes increasingly difficult as the number of records increases. In a world where anyone can easily become a published author, it is increasingly likely that two people with the same name will share the same birth year and possibly the same death year as well. Cataloging rules prescribe the addition of birth and death months and days in these cases, but this adds a considerable research burden simply to achieve identification. As demonstrated by URIs and GUIDs, simpler means of global identification are possible.

A second problem is that while birth and death dates may adequately individuate a person in the authority file, they may not help a user individuate. A user who is trying to identify a par-

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as it implies that records somehow exist apart from their identification. This is not the case: a system of identification defines what individual records are. So two records are *always* different, since if they were not they would be one record, not two. To be a record in a system is to be individuated by that system.

5. Technically, Web architecture distinguishes between *resources*, which are abstract locations in the information space defined by the Web, and *representations*, which are concrete blobs of data such as HTML documents or digital images. URIs, by definition, identify resources, so if there are two different URIs there are two different resources. Human users of the web, however, tend to ignore URIs in favor of representations: if resolving two different URIs results in the same representations being retrieved, people will consider them to be two different URIs for "the same web page." More problematically, if resolving two different URIs results in *similar* representations being retrieved—for example, two HTML documents with similar layout and styling, both of which have the familiar *New York Times* logo at the top—people will often still consider them to be "the same web page." The problem is that "the same web page" is a fuzzy notion that only exists at the user level, where people can come to rough agreement on what is to be considered "the same." At the system level, there are only resources and representations, with rigid criteria for individuating both.

6. Older practices include adding the dates when the person was most active, the name of the person's primary occupation, or the name of the person's primary place of residence. All of these are problematic in that they assume a consensus that may not exist.

7. Karen Coyle, "Name Authority Control, a.k.a. Name Identification," 2007, `http://kcoyle.blogspot.com/2007/09/name-authority-control-aka-name.html` (accessed June 23, 2010).

ticular person may know where that person lived, or what that person's occupation was, or the titles of books that person authored, but not when that person was born or died. In this case, the user would like to be able to use attributes other than birth and death dates for individuation. Hard-wiring birth and death dates as individuation criteria forecloses on the possibility of flexible criteria for user individuation.[8]

The last of the problems Coyle identified is that conflating user and system individuation results in brittle links among records. If attributes displayed to users for individuation purposes are also used as identifiers for linking records, then the system cannot adapt its displays to changes in user individuation needs without also breaking links among records.

Separation of system individuation from user individuation, in order to support a flexible approach to the latter, is a critical requirement of authority files. If this is true for entities like people, the individuation of whom is relatively unproblematic (exceptions like St. Patrick and Wittgenstein notwithstanding), it is even more true for entities like events. Event directories must be clear about the criteria that have been used for system-level individuation of events, and they must allow users to individuate events in different ways.

Philosophers have long debated the problem of how to individuate events. The problem is a deep one, as it is related to debates over the ontological status of events. To crudely simplify this debate, I characterize two basic positions, one which takes events to be concrete individual items in the world, and one which takes events to be products of language (specifically narrative language). My goal here is not to get into the specifics of the ontological debate but only to give a sense of the spectrum of different possible approaches to the individuation of events.

The philosopher Donald Davidson believed that the structure of our natural language reflects the structure of reality. He argued that successful communication depends upon the communicators having "a largely correct, shared, view of the world" and that, since natural language is successfully used for communication, we can reach conclusions about the nature of the world by studying natural language.[9] Using this approach to metaphysics, Davidson wrote a famous series of essays on the nature of events as indicated by our use of language.[10] The crux of his argument was that our use of language seems to indicate a difference between events and descriptions of events. Consider the following sentences:

1. Barack Obama signed the health care reform bill.

2. Barack Obama joyfully signed the health care reform bill.

3. Barack Obama joyfully signed the health care reform bill with 22 pens.

8. A related issue is the way corporate bodies are treated in different name authority files. Changes in the name of a corporate body typically result in separate name authority records in library name authority files. Name authority files in archives, on the other hand, do not use company names to individuate corporate bodies. A company that has changed its name is modeled as a single entity that has has different names at different time. The problem is not that the two systems use different principles for individuating corporate bodies—it is unreasonable to expect everyone to individuate entities the same way. Rather the problem is that, by conflating names and identifiers, library authority files make it difficult to address the problem by mapping between identifiers in the two different systems.

9. Donald Davidson, "The Method of Truth in Metaphysics," *Midwest Studies in Philosophy* 2, no. 1 (1977): 244, doi:10.1111/j.1475-4975.1977.tb00044.x, http://www.blackwell-synergy.com/doi/abs/10.1111/j.1475-4975.1977.tb00044.x.

10. Donald Davidson, *Essays on Actions and Events*, 2nd ed. (Oxford: Clarendon Press, 2001).

4. Barack Obama joyfully signed the health care reform bill with 22 pens in the East Room of the White House.

5. Barack Obama joyfully signed the health care reform bill with 22 pens in the East Room of the White House on March 23, 2010.[11]

Davidson argued that, intuitively, we want to say that these sentences all describe or refer to "the same event." If we trust our intuition we are led to believe that there is something in reality—the event—to which all these sentences refer. Davidson sought to bolster that intuition by demonstrating that, without the notion of an event as a concrete entity with a location in space and time, we cannot make sense of certain logical relationships among statements, for example the fact that each sentence in the list above is understood to entail the previous sentences.

Davidson argued that natural language sentences such as these can be translated into a "logical form" that captures their meanings and the relationships between their meanings. The logical form of a sentence is expressed using first-order logic. First-order logic is distinguished by its use of *quantifiers* to enable the expression of generalizations like *Everything that thinks is alive* (universal quantification) and assertions like *There is something that thinks* (existential quantification). Davidson held that sentences like the ones above existentially quantify over events. For example, the logical form of the third sentence above would be something like (paraphrasing first-order logic) *There exists something X such that it is the event of Barack Obama signing the health care reform bill, and X was done joyfully, and X was done with 22 pens*. What the logical forms of the sentences above have in common, Davidson believed, was this *X*, the event that is their shared referent and the existence of which they commonly assert, despite the different modifications that follow this assertion.[12]

Davidson's argument, which I have not done justice to here, is a strong one and has become the mainstream position on events among analytic philosophers. Ideas like Davidson's lie behind efforts to automatically "detect" and "extract" events by analyzing texts. Certainly given sentences like the ones above, and the kinds of sentences Davidson typically uses as examples, the intuition that the sentences all "refer" to the same concrete event is strong. But consider the following sentences:

6. On March 23, 2010, with the strokes of 22 pens, Barack Obama transformed the United States into a socialist country.

7. On March 23, 2010, with the strokes of 22 pens, Barack Obama ensured a more equitable future for the children of the United States.

Do these sentences "refer" to "the same event" as the previous sentences? Let's assume that the context of these last two sentences is such that it is clear that the writer intended to comment upon the health care reform bill, and not something else Barack Obama did with a pen that day. On the one hand, it seems correct to say that these sentences too refer to the same event as the earlier sentences. But on the other hand, it doesn't seem incorrect to say that these sentences refer

11. Sheryl Gay Stolberg and Robert Pear, "Obama Signs Health Care Overhaul Bill, With a Flourish," *New York Times*, March 23, 2010, `http://www.nytimes.com/2010/03/24/health/policy/24health.html`.

12. Donald Davidson, "The Logical Form of Action Sentences," in *Essays on Actions and Events*, 2nd ed. (Oxford: Clarendon Press, 2001), 105–122.

to two different events. The first event is one in which a closet radical who has managed to fool a capitalist country into electing him president finally realizes the first step in his secret agenda. The second event is one in which a liberal hero finally overcomes the forces of wealth and power to strike a blow for the little guy.

Sentences 6 and 7 are notable for their strong point of view. In that sense, they are more typical of the kind of sentences found in historical narratives. As Ankersmit noted, "the differences between descriptions given by historians of what is still felt to be the same event may be of a more dramatic nature than in the case of scientific descriptions."[13] As a result, the question of whether events can be separated from sentences becomes a little less clear. It becomes even less clear when one considers not just individual sentences, but whole texts. William Cronon compared two books on the long drought that struck the midwestern plains of the U.S. in the 1930s, known as the Dust Bowl. Cronon found that despite covering the same span of time and region of space, the two books constructed two very different Dust Bowls: one a triumph of human spirit over natural disaster, the other a human-wrought ecological disaster.[14]

It was these kinds of contrasts that led Louis Mink to claim that

> we cannot without confusion regard different narratives as differently emplotting the "same" events. We need a different way of thinking about narrative. "Events" (or more precisely, descriptions of events) are not the raw material out of which narratives are constructed; rather an event is an abstraction from a narrative.[15]

Mink argued, contrary to Davidson, that events are not concrete things existing apart from and referred to by sentences, but are ways of summarizing sets of sentence organized into narratives. Of course, with his qualifying "more precisely, descriptions of events" Mink left the door open to the claim that he too was making a distinction between concrete events existing in the world and the sentences or parts of sentences describing those events. Mink's point, however, was that in history events and descriptions of events are interchangeable; we cannot identify events except by narrating them and deciding whether or not to conclude that two narratives are, in the abstract, sufficiently similar to say that they emplot the "same" events.

My view on the nature of events, as should be clear from the rest of this dissertation, is closer to Mink's than it is to Davidson's. Yet Davidson is clearly right that there are times when we wish to say that two sentences refer to the same event, or that two texts have the same event as their subject. Without conclusively settling questions about the ontological status of events, we can nevertheless conclude that the criteria for individuating events can vary. We can see this by looking at how the two positions on the nature of events lead to different criteria for individuating them.

Davidson claimed that events are concrete individual things that we can count. He recognized that this claim, to be credible, required some principle for counting—some principle for deciding whether there is one event or two. In practice, Davidson noted, we do seem to successfully count events, since "rings of the bell, major wars, eclipses of the moon and performances of *Lulu* can be

13. Ankersmit, *Narrative Logic*, 173.

14. William Cronon, "A Place for Stories: Nature, History, and Narrative," *The Journal of American History* 78, no. 4 (1992): 1347–1376, doi:10.2307/2079346, http://www.jstor.org/stable/2079346.

15. Mink, "Narrative Form as a Cognitive Instrument," 147.

counted as easily as pencils, pots and people."[16] So, he asked, what are the criteria of individuation? Davidson originally argued that

> Events are identical if and only if they have exactly the same causes and effects. Events have a unique position in the framework of causal relations between events in somewhat the way objects have a unique position in the spatial framework of objects.[17]

Davidson's proposal is interesting because it seems to suggest that Mink was correct when he argued that two narratives cannot differently emplot the "same" event. If to emplot an event is to place it in a nexus of causal and contingent relations, then two differently emplotted events are, under Davidson's criteria, two different events. But Davidson did not consider narratives to establish true causal relations. When Davidson wrote of the "causal nexus," he seemed to have in mind something like what Laplace's demon might see: the one true set of causal relations as determined by scientific laws. Historical narratives, on the other hand, he considered to be just "causal stories" or "rudimentary causal explanations" and not true causal relations, and thus presumably not suitable for individuating events.[18]

Later Davidson, in response to a critique by Willard Van Orman Quine, abandoned his proposal that causal relations individuate events.[19] He accepted (with some reservations) the alternative criteria suggested by Quine that events are the same if they occupy the same space at the same time. This raises the problem of deciding deciding how, or whether, events occupy space and time, a problem to which I return in section 6.1. But both Quine and Davidson remained wedded to the idea that events are concrete individual things, and thus that there *are* some true set of individuation criteria for events, even though those criteria may be complex, and even though in many cases we may not be able to actually satisfy those criteria well enough to ascertain identity. In contrast, consider Veyne's declaration that

> events are not things, consistent objects, substances; they are a découpage we freely make in reality, an aggregate of the processes in which substances, men, and things interact. Events have no natural unity; one cannot ... cut them according to their true joints, because they have none.[20]

Veyne argued that individuation criteria are not given by nature or language but are what we make of them. That is the position I take here. An event directory necessarily must propose some criteria for individuation, but there is no "true" set of criteria it must adhere to. Of course, the kinds of criteria suggested by Davidson and Quine are useful ones and event directories may

16. Donald Davidson, "The Individuation of Events," in *Essays on Actions and Events*, 2nd ed. (Oxford: Clarendon Press, 2001), 180.

17. Ibid., 179.

18. Donald Davidson, "Causal Relations," in *Essays on Actions and Events*, 2nd ed. (Oxford: Clarendon Press, 2001), 161–162. Here Davidson echoed Hempel's claim that historical narratives are not true explanations (which would require general laws) but merely "explanation sketches." Hempel, "The Function of General Laws in History."

19. Willard Van Orman Quine, "Events and Reification," in *Actions and Events: Perspectives on the Philosophy of Donald Davidson*, ed. Ernest LePore and Brian P. McLaughlin (Oxford: Blackwell, Basil, 1985), 162–171; Donald Davidson, "Reply to Quine on Events," in *Actions and Events: Perspectives on the Philosophy of Donald Davidson*, ed. Ernest LePore and Brian P. McLaughlin (Oxford: Basil Blackwell, 1985), 172–176.

20. Veyne, *Writing History*, 36–37.

choose to use them, particularly if they wish to advocate a more "scientific" viewpoint. But these are not the only criteria, and event directories may choose others or even more than one set of criteria. The main requirement is that the designers of event directories not assume the individuation of events as given and document the choices they have made.

An example of best practice for documenting individuation criteria was provided by Doerr et al. in the design of their time period thesaurus. Rather than assume that spatiotemporal location alone suffices to individuate periods, they made a clear distinction between the characteristics archaeologists use to individuate time periods and the spatiotemporal regions associated with those periods. This made the thesaurus robust to new archaeological discoveries. For example, if a period were defined as being associated with the prevalence of a certain kind of pottery, then the later discovery that said pottery was in use earlier than was previously known would only result in a change to the temporal bounds associated with the period, not its individuation criteria.[21]

5.2 Selection

The next requirement is *selection*.[22] A user may be trying to select documents or she may be trying to select events. Let's begin with the latter.

5.2.1 Selecting Events

There are two main reasons why one might use an event directory to select event records (rather than to select documents). First, one may be interested in using the event directory as a kind of reference resource, to acquire some basic knowledge of the event and its relations. Or one may wish to explicitly link a document to a particular event. For instance, a blogger who wishes to label a blog post as being about the Soweto Uprising might use an event directory to find a standard identifier for that event, which he can then use to link his post to the event record. In either case, the user must use some attribute or relation to select the event of interest.

Most obviously, one can look for events by *name*. Sometimes, however, events may not have names, or one may not know the name of the event in which one is interested. In these cases, the event must be looked up via some entities or concepts to which it is related. There are a number of possibilities here. One might be interested in events involving some character, for example events in the life of Emma Goldman or events involving the Confederate States of America. Or one may be looking for events associated with or portrayed as occurring in a particular place or setting, such as Ireland or the American Midwest. Finally, one may look for events that are directly

21. Doerr, Kritsotaki, and Stead, "Which Period Is It?"

22. A distinction is sometimes made between *finding* and *selecting* resources, where *finding* is defined as an initial narrowing down of the universe of resources to some set of candidates, and *selecting* is defined as choosing from that set the resource or resources that best meets one's needs. See for example IFLA Working Group on Functional Requirements for Subject Authority Records, *Functional Requirements for Subject Authority Data: A Conceptual Model*, 2nd draft 2009-06-10 (International Federation of Library Associations and Institutions, 2009), 16–17, `http://nkos.slis.kent.edu/FRSAR/report090623.pdf`. Wilson made a similar but clearer distinction between descriptive control and exploitative control of bibliographic records, where the former refers to the power to retrieve arbitrarily defined subsets of records, and the latter refers to "the power to procure the best textual means to one's ends." Wilson, *Two Kinds of Power*, 22. While I agree with Wilson that exploitative control is the ideal to which an organizational system should aspire, here I focus on issues of description.

related to another event in some way that doesn't necessarily involve shared characters or settings. For example, one might seek events that have been portrayed as causes or consequences of the Battle of the Boyne, or all events that have been emplotted as leading up to, part of, or following from the French Revolution.

In addition to selecting events through their relationships to other concepts and entities, an event directory must support selecting events using the abstract grid of space and time. For example, one may be interested in events portrayed as having taken place within a given geographical area or as having encompassed a given point on the globe. Similarly, one may be looking for events portrayed as having taken place during the 19th century or as having been ongoing on June 4th, 2009. Finding events in space and time requires that events be resolvable to locations in a spatiotemporal reference system, and that any alternate systems for measuring space and time used in queries can be mapped to the reference system. For example, if the Gregorian calendar were used as the temporal reference system, queries that specified time using the Chinese calendar would need to be converted to Gregorian time.

Finally, users may wish to select events of a certain type, such as battles or social movements. Given that one man's riot is another man's revolt, this can be more complicated than it first appears. To select events that have been typed a certain way, one must specify both a taxonomy of event types and possibly a party responsible for assigning types to events. Given the lack of standard event type taxonomies, it may be easier to rely on event name queries to approximate queries by type. Since named events often have types integrated into their names (e.g. the Watts *Riot* or the *Battle* of the Boyne), substring searches on event names may help select events of a certain type, especially if alternate names have been specified for events. For unnamed events, however, keyword searches on textual descriptions are unlikely to provide precise or complete results, and querying using an explicit type from a taxonomy would be preferable.

5.2.2 Selecting Documents

Selecting an event may not be the ultimate goal of the user—he or she may actually be looking for an event-related document of some sort. A document can stand in two kinds of relation to an event. First, it may have been transformed into *evidence* for an event through the process of historical inquiry. In other words, some historian has studied the document, made a judgment about the status of the document as a survival from the past, and on the basis of that study and that judgment has inferred an event.

Marrou enumerated a number of forms this inference from document-as-evidence to event can take.[23] In some cases the inference may be very direct, as when the event in question involves the document itself, e.g. when it was produced, or when a certain word or phrase was first used. A slightly less direct form of inference moves from the document to some mental event, e.g. an intention, of the document's creator. Yet further afield are inferences made about the general milieu of the document's creator, inferences made on the basis of ideas expressed or the way they are expressed, regardless of the creator's specific intention. Finally there are those inferences made to events localized in time and space: things that characters in the past did or had happen to them. This last category of inferences is the least certain, despite the seemingly "concrete" or "factual" nature of the events inferred.

23. Marrou, *The Meaning of History*, 133–137.

The second kind of relation that a document can bear to an event arises when the historian articulates his inferred event in a history-as-portrait. A historical monograph, historical documentary film, or a historical museum exhibit is a document that *portrays* an inferred event.

It should be clear that it is possible for a given document to be both a portrayal of an event and evidence for some event. An eyewitness account is a portrait of an event produced by the eyewitness, and if a historian has judged it to be authentic and accurate, it is also evidence for that event. Yet a document that is both portrait and evidence need not bear both relations to the same event. Marrou gave the example of the work of fourth-century Roman historian Ammianus Marcellinus, which *portrays* events during the reigns of Constantius II and Julian the Apostate, yet which may be used as *evidence* for very different events, such as the appearance of particular ways of thinking or acting among a certain class of Roman men of that time, inferred from the language of the document.[24]

Some documents can only be evidence and not portrait. Buckland used the example of bloodstains or footprints, which may be treated as evidence for an event but portray nothing by themselves.[25] Any document is potential evidence, but only some documents are portraits.[26]

The analysis above calls into question the familiar distinction between "primary" and "secondary" historical documents. These are not distinct classes to which documents belong. Being "primary" or "secondary" concerns a relation between a document, an inferred or articulated event, and a person producing an inference or articulation.

When looking for documents related to an event, one may not be concerned with the kind of relation at all. In this case, it may be sufficient to look for (variations of) an event name using full-text search of textual documents or of written descriptions of non-textual documents. But this approach is unlikely to be either precise or comprehensive. Besides the well-known vocabulary problems that plague full-text search, there is the problem that documents which portray or evince an event may not use any names of that event. Expanding queries to include the names of people, places or other concepts related to the event may help, but to be reliably findable such documents must be explicitly linked to an identifier for the event.

Explicit linking to an event record is indispensable if the *kind* of relation between the document and the event is important. One must be able to narrow down the set of all related documents to those that are related as evidence or those that are related as portraits, or to those that are related as both evidence and portrait. It may be desirable to further narrow the set by specifying *who* treated the documents as evidence or who created the portraits. The latter is a basic function of any bibliographic instrument. The former is rarely found in current tools, but will be increasingly important as the publishing of historical data becomes more widespread.

24. Marrou, *The Meaning of History*, 135.

25. Buckland, *Information and Information Systems*, 48.

26. Buckland identified three categories of relation that may obtain between an event and a document: direct evidence, first-hand account, and reenactment. Ibid., 48–49. These three categories reduce to the two categories I've outlined here. A document is direct evidence if it is treated as evidence for but not a portrayal of an inferred event. A first-hand account is a portrait of an event that is treated as evidence of that event. The remaining category consists of those portraits that are not treated as evidence for the event in question (though they may be evidence for some other event). I prefer the term "portrait" to "reenactment" in keeping with my insistence that historical events are products of or articulated through their portrayal, and not independent entities in the past to be *re*enacted.

5.3 Contextualization

While individuation and selection are necessary and useful functions, the effort of constructing an event directory may not be justified by these functions alone. Another key function of an event directory is to provide *context* by relating events to documents and to other concepts (including other events). Ideally, an event directory provides a descriptive relation between an event and some concept (such as a person, place, institution, or other event) whenever it is the case that knowing more about that concept would help one better understand that event. Likewise, an event directory should relate an event and a document whenever knowing more about that document would help one better understand that event, and vice versa. In each case the thing that one should know more about is considered to be context for the thing to be understood.

Historians construct context for survivals from the past in the form of historical events, which are themselves contextualized by narrative portraits. Historians produce their portraits partially in response to other portraits that previous historians have produced, and over time this results in certain events and sequences of events becoming part of a cultural code. As Ann Rigney observed,

> There is a certain difficulty involved for a twentieth-century reader—particularly a reader who is not French—in following these nineteenth-century histories of the French Revolution (or indeed more recent ones) since they depend so largely on the reader's foreknowledge of a particular cultural code to which the principal elements of the Revolution already belong.[27]

An event directory can potentially help users decode nominal references to historical events by providing the basic information linking them to time, place and related concepts, as well as putting them in the context of the narratives for which they act as mnemonics. Because it presents events in a certain selected context, an event directory is yet another history-as-portrait. By design, this portrait will lack the rich detail and artistic or literary qualities of some other kinds of portraits. But by forgoing these it can help one quickly get oriented in an unfamiliar historical space by providing a schematic view of contextual relations. By formalizing the contextual constructs of other historical portraits, it makes these constructs more amenable to computational access, and makes it possible to integrate context-providing services into digital environments for practicing and interpreting history.

Berkhofer identified in historical practice several kinds of context.[28] The first is some inferred *past context*: the actual relations among events, people, places and institutions in the past. Being past, this context is no longer accessible but is inferred from documents that are interpreted as reflecting that original context in which they were created. These documents compose the second kind of context, which we might call the *documentary context*. Historians construct the documentary context by identifying, authenticating, and interpreting survivals from the past to produce portraits of the inferred past context. These portraits constitute yet another kind of context: the *represented context*. A fourth context is the *disciplinary context* of history-as-practice itself. A historian must assimilate the contemporary methods and procedures of history-as-practice to produce

27. Ann Rigney, *The Rhetoric of Historical Representation: Three Narrative Histories of the French Revolution* (Cambridge: Cambridge University Press, 1990), 40n22.

28. Robert F. Berkhofer, Jr., *Beyond the Great Story: History as Text and Discourse* (Cambridge, Massachusetts: Harvard University Press, 1995), 19–24; Berkhofer, Jr., *Fashioning History*, 23.

something that her peers recognize as history-as-portrait. Disciplinary context changes over time, and it may be difficult to interpret past history-as-portrait without an understanding of the disciplinary norms and traditions active at the time. Disciplinary context is really just a special case of the most fundamental context, which is the societal or *cultural context* in which a historian and her intended audience operate. At this point we have closed the circle back to "actual" contextual relations among events, people, places and institutions, except these relations constitute the historian's present reality and not some inferred past reality.

In his survey of types of contextual information useful for understanding items in digital collections, Christopher Lee identified three senses of context that complement Berkhofer's typology. One sense is *actual context*, the "objective or socially constructed characteristics and conditions" of some situation.[29] Actual context is "directly lived and felt; it is ... unconstructed and uninterpreted—in short, prelinguistic."[30] In contrast, an *interpretive context* is an actor's interpreted understanding of reality.[31] The third sense is *symbolic context*, consisting of recorded discourse and its arrangement and organization. Historians, or anyone else engaged in organizing and making accessible recorded knowledge, seek to encode their interpretive contexts as symbolic contexts. Symbolic context is always a product of its producer's interpretive context. But a producer of symbolic context may intend for it to be understood as referring to some actual context, or he may intend for it to be understood as referring to some interpretive context (including perhaps the producer's own interpretive context).[32]

To navigate this labyrinth of nested contexts, one needs a map:

> What information searchers need are maps that inform them about the world (and the literature about that world) in which they live and act. They need such maps in order to formulate questions in the first instance ... This is probably especially so in the humanities, where concepts are more clearly associated with worldviews."[33]

Event directories are maps of history that inform us about the past and the discourse about the past. Like maps of space, they can be used for exploration and orientation.

29. Lee, *Taking Context Seriously*, 2.

30. Berkhofer, Jr., *Beyond the Great Story*, 20.

31. Historians often make a contrast between actual and interpretive context when they wish to portray differences of belief among past peoples. Danto gave the example of the stones used by Roman merchants as reference weights for marketplace scales. Danto, *Narration and Knowledge*, 336–338. With the rise of Christianity, churches were often established at the former sites of marketplaces. The weighing stones remained, and with the loss of memory of their earlier function came to be seen as holy relics, as they were believed to have been used for stoning to death Christian martyrs. Danto made the point that the distinction between objective and interpretive context can *only* be made by the historian or anthropologist, since it is not possible to separate what is objectively true or real from what one currently believes to be true or real.

32. Of course, once one has produced some bit of symbolic context, one loses the power to control the possible interpretations of that context. A label intended to describe the actual past context of some artifact may later be understood as communicating something about the interpretive context of the labeler. But if the label is part of a organizational system that has had its own context of development and use adequately documented, there is at least some hope that the labeler's original intention can be understood as part of that interpretive context.

33. Hjørland, "Semantics and Knowledge Organization," 393.

5.3.1 Exploration

One may use a map to explore and learn about an unfamiliar place. If the map is detailed enough, exploration of an unfamiliar place need not require traveling to that place: using Google's suite of mapping tools one can quite satisfactorily explore suburban Tokyo or the edge of the Sahara. When an event directory's representations of historical context are taken as referring to the actual past, the directory can be treated as a map for exploring the past, even though it is impossible to actually visit it. The event directory is a map of history that makes it possible to learn about the past by following connections among events, characters and other concepts.

The idea that the past is best understood through a network of contextual relations was dubbed "contextualism" by Hayden White:

> The informing presupposition of Contextualism is that events can be explained by being set within the "context" of their occurrence. Why they occurred as they did is to be explained by the revelation of the specific relationships they bore to other events occurring in their circumambient historical space ... The Contextualist proceeds ... by isolating some (indeed, *any*) element of the historical field as the subject of study, whether the element be as large as "the French Revolution" or as small as one day in the life of a specific person. He then proceeds to pick out the "threads" that link the event to be explained to different areas of the context. The threads are identified and traced outward, into the circumambient natural and social space within which the event occurred, and both backward in time, in order to determine the "origins" of the event, and forward in time, in order to determine its "impact" and "influence on subsequent events. This tracing operation ends at the point at which the "threads" either disappear into the "context" of some other "event" or "converge" to cause the occurrence of some new "event." The impulse is not to integrate all the events and trends that might be identified in the whole historical field, but rather to link them together in a chain of provisional and restricted characterizations of finite provinces of manifestly "significant" occurrence.[34]

Contextualism is the paradigm underlying the development and articulation of colligatory concepts in history. The threads entwining characters and places, leading back to origins and forwards to consequences, are the relations that must be understood to make sense of history in the contextualist mode.

One can compare a directory that aims to contextualize historical events to an outline of subjects for a history course or a higher-level framework for organizing a series of syllabuses for history education. The educator W. H. Burston believed that history teachers should teach not only the "facts" about historical events, but should show how historical events are explained.[35] Any method for grouping events to be covered in a history course or series of courses presupposes some theory of historical explanation.

Burston argued that a theory of explanation through colligation is presupposed by the "topic method" of teaching history. The topic method arranges historical events into teachable units

34. Hayden White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: Johns Hopkins University Press, 1973), 17–19.

35. Wyndham Hedley Burston, "Explanation in History and the Teaching of History," *British Journal of Educational Studies* 2, no. 2 (1954): 112–121, http://www.jstor.org/stable/3118308.

by grouping them under self-contained concepts. Burston gave the example of English history from 1815 to 1832, which might be grouped under topics such as "social discontent after 1815," "government policy-enaction and reform," "the Congress of Vienna," "the Congress system," and "Parliamentary reform." He contrasted this method to a "line of development" method of grouping events, in which students might study (for example) "transportation through the ages." The difference is that the topic method seeks to construct through the colligation of events meaningful concepts that can be contextualized in their local time and place, whereas the line of development method assumes that events are best understood as members of more abstract categories. Both methods differ from a purely chronological division in which events are grouped according to arbitrary spans of time such as centuries or decades.

A history syllabus or higher-level framework for history education provides a map to help teachers and students find their way through a web of events and explanations. As students get older and become more capable, more detail can be added to the map. Any history-as-portrait is a map in a certain sense. Ankersmit suggested that what makes historical narratives useful is that, like maps, they strip away the overwhelming detail of actual experience, leaving an intelligible form:

> A map should not be a copy of reality; if it were we could just as well look at reality itself. Being an abstraction of reality is just what makes maps so useful. The same goes for historiographies: we expect the historian to tell us only what was important in the past and not the "total past".[36]

The intelligible form of a geographical map consists of the spatial relations made evident in its layout. One can look at a map to see where places are relative to other places. The map provides spatial context. A history-as-portrait provides historical context. One can read or watch history to learn how events happened relative to other events. The colligatory relations articulated in a history-as-portrait compose its intelligible form. Just as a simple hand-drawn route map can be easier to follow than a photorealistic one, an event directory should make these relations clearer through further abstraction.

The analogy with geographic maps raises the question of aggregation. Geographic maps of different regions can be transformed and projected onto a common system of coordinates. Can we expect to be able to join event directories covering different domains of history to obtain a master directory covering a superset of these domains? According to Ricœur, we expect that

> the facts dealt with in historical works, when they are taken one at a time, interlock with one another in the manner of geographical maps, if the same rules of projection and scale are respected ... It is a legitimate and unavoidable question how the history of a given period interlocks with that of some other period, the history of France with that of England, for example, or how the political or military history of a given country at a given time dovetails with its economic history, with its social history, and its cultural history. A secret dream of emulating the cartographer ... animates the historical enterprise.[37]

36. Ankersmit, *Narrative Logic*, 51.
37. Ricœur, *Time and Narrative*, 176.

Indeed, isn't the promise of being able to link together fragments of history into a collaborative whole one of the great motivations to develop standardized schematic representations of historical relationships? But we should not expect a single coherent past to emerge from such interlinking. We must remember that the relations in an event directory are abstractions from historical narratives, which portray the past but should not be taken for the past itself. Different narratives express different points of view that do not necessarily combine into intelligible wholes (see section 3.3).

Aggregating event directories into a larger framework will not yield a more complete view of the past, because there is no "whole view" of the past to be completed. However, a more complete view of *discourse about* the past could be achieved by juxtaposing different portraits made from different perspectives. To do this an event directory must accommodate conflicting views without trying to resolve them. If the designer of an event directory wishes to accommodate conflicting views, he must shift from treating its representations of historical context as references to the actual past, toward treating them as references to interpretations of the past.

5.3.2 Orientation

When an event directory's representations of historical context are taken as referring to interpretations of past, the directory can be used for orientation. One may use a map to orient oneself by determining one's own position relative to something else. Jörn Rüsen proposed that history is a "cultural framework of orientation" in time.[38] According to Rüsen, we make the passage of time intelligible through reflecting on our experiences, interpreting and telling stories about them. Through such interpretation, the otherwise unintelligible passage of time acquires meaning and becomes history. History orients us in time: it tells us who we are and how we relate to what has come before.

According Rüsen's theory, one way that people orient themselves using history is by tracing the kinds of threads White described in his account of contextualism. Genealogy, where one seeks one's origins by tracing back through a web of births and marriages, is a good example of this. Other examples are stories told of the founding of an institution of which one is a member: the story of how Yahoo!'s founders started the company in a trailer at Stanford University is regularly recounted to new employees. These stories directly relate their audiences to historical characters and events, in effect making the audience members characters too.

But, as Rüsen showed, history does not perform its function of orientation only at this level of direct, "actual" relations with the past. More often, history orients its audience at the level of interpretation, where histories are treated as stories rather than as transparently presenting actual relations. For example, historians often allude to historical events as instructive examples for understanding current events. Consider the historian of economic inequality in the U.S. circa 2007–2008, who references the Gilded Age of the late nineteenth century. He does so not necessarily because he intends to trace causal relations between the earlier period and the later one. Rather he does so because he wishes to imply that the narrative that presents the best perspective

38. Jorn Rusen, *History: Narration, Interpretation, Orientation* (New York: Berghahn Books, 2005), 1, http://berkeley.worldcat.org/title/history-narration-interpretation-orientation/oclc/54966545&referer=brief_results.

for understanding the current situation is one that has a *form* similar to a particular, conventionally accepted narrative of the Gilded Age. He is making an analogy.

While analogies like the one above draw upon conventionally accepted narratives, other histories seek to re-orient their audiences by criticizing conventionally accepted narratives. To a certain extent, nearly every history attempts to do this—if the conventional story were perfectly adequate, why produce a new one? But certain histories specifically aim to dislodge a dominant narrative and replace it with a new one. Where analogies with the past appeal to a kind of continuity of form, critical histories try to break that continuity.

Finally, there are histories that try to orient their audiences not by directly linking them into historical narratives, nor by analogizing with or criticizing accepted historical narratives, but by giving accounts of changes in the narratives themselves. These histories re-establish continuity by portraying a higher-level process of change. An exemplary case is Thomas Kuhn's *The Structure of Scientific Revolutions*, in which he posited that discontinuous change in scientific thought is itself a steady factor, something his late twentieth-century readers could use as a reference point for understanding their present situation.[39]

What is important about Rüsen's typology of history is that it shows how history functions to orient us at the level of discourse and not simply at the level of direct chains of causal relation to the past. An event directory that is intended only to help people understand the past through exploration of the colligatory threads among events and characters and their settings need not refer to the stories that spin those threads. But if the event directory is intended to help people orient themselves by understanding *discourse about* the past, it needs to represent not only events and characters and places but also stories and relations among them.

Drawing upon Rüsen's ideas, Peter Lee developed a set of requirements for a framework for history education that would not only help students contextualize historical events but develop their "metahistorical" understanding.[40] Like Burston, Lee argued that students should understand not only what happened, but how we explain what happened. Lee argued that history education should simultaneously develop both student's conceptions of the past and their understanding of history as a discipline and discourse. These are the two functions that I have labeled "exploration" (of conceptions of the past) and "orientation" within historical discourse.

Lee advocated for a history education that provides a framework for recognizing and evaluating various sorts of claims made about the past, such as the claim that a given period of technological development constituted a "revolution." A successful framework would help students understand how such claims are related to both the kinds of questions asked about the past and the kinds of evidence used to support the claims. Within such a framework students could see not only which events are significant, but why they are significant, and how different perspectives result in different events being considered significant.

Lee emphasized that such a framework cannot simply outline a story, since it must organize into patterns a multitude of stories. Nor can or should such a framework try to include the kind of detail found in full-scale historical narratives, but should abstract away from that detail in order to show patterns of conceptualizing change and continuity. Finally, Lee recommended that a

39. Kuhn, *The Structure of Scientific Revolutions*.

40. Peter Lee, "'Walking Backwards into Tomorrow': Historical Consciousness and Understanding History," *International Journal of Historical Learning, Teaching and Research* 4, no. 1 (2004), http://centres.exeter.ac.uk/historyresource/journal7/lee.pdf.

framework be scalable to different levels of historical sophistication and capable of being modified as needed for local purposes. Such modifications might include making links among events and concepts more or less complex and subdividing and recombining conceptual groupings.

Lee's proposed requirements echo Donald Case's call for a "problem-oriented" principle of organization for library tools and services for historians. Case had concluded that "history may be less well served by classification and indexing than any other academic field" and wished to remedy that situation.[41] The problem, as Case saw it, was that library organization had focused on modeling a body of knowledge about the past by subdividing it into place and period. To better serve historians, it needed to focus on modeling discourse about the past, by organizing around the kinds of questions historians ask. In particular, Case argued, librarians need to develop ways to index "the 'point of view' or 'context' that is so often the central concern in discussions of historical problems."[42] Helen Tibbo, in her authoritative study of historical abstracting, also concluded that guides to historical literature need to not only identify entities "in" histories such as the names of places, characters and events but also to identify the meta-concepts "around" histories, such as interpretive stances, patterns of argumentation, disciplinary traditions, and methodologies.[43]

Ankersmit contended that the point of view proposed by a historical narrative can only be recognized by comparing the narrative to other narratives:

> Being aware of the possibility of other views of the past is an essential part of the meaning of "having knowledge of the past" ... [This is] not primarily because each narratio will mention facts not mentioned in others, but because only the presence of other narratios enables us to draw the contours and to recognize the specificity of the view of the past presented in each narratio ... The past has to be covered with a network of narratios whose overlappings enable us to decide on the objectivity of narratios on relatively new historical topics ... One single man can discover truths about nature, but the possibility of knowledge of the past requires the presence of and the opposition to competing insights in a much more dramatic way.[44]

An event directory for orienting users to historical discourse ought to make these overlappings evident, and to show the contours of differences in perspective that distinguish individual narratives. Far from providing a more "complete" view of the past, an event directory should multiply and juxtapose views. As Geoffrey Bowker has argued

> the goal of metadata standards should not be to produce a convergent unity. We need to open a discourse—where there is no effective discourse now—about the varying temporalities, spatialities and materialities that we might represent in our databases, with a view to designing for maximum flexibility and allowing as much as possible for an emergent polyphony and polychrony.[45]

41. Donald Owen Case, "The Collection and Use of Information by Some American Historians: A Study of Motives and Methods," *Library Quarterly* 61, no. 1 (1991): 79.

42. Ibid., 79–80.

43. Helen Tibbo, *Abstracting, Information Retrieval, and the Humanities: Providing Access to Historical Literature* (Chicago: American Library Association, 1993), 191–193.

44. Ankersmit, *Narrative Logic*, 240–241.

45. Bowker, *Memory Practices in the Sciences*, 183–184.

For an event directory intended primarily to provide access to a homogenous collection of documents, or to enable exploration of a narrowly defined slice of history-as-portrait, one may choose to simply summarize a single consensus story of the past. But if one aspires to orient users to a wider historical discourse, an event directory should aid their understanding of the variety of stories told about the past, and to do so it must represent not only the contents of those stories—events, characters, settings—but the stories themselves.

Chapter 6

Modeling Historical Events and Periods

> Places and years are intimately linked, and what about events and years? Since experiences can color an entire decade, how much more powerfully and swiftly they can color a short year. A short year? Joseph was by no means satisfied with this expression. Just a moment before he had been standing before the villa and, lost in thought, said to himself: "Such a year, how long and full it is."
>
> Robert Walser, *The Assistant*

In chapter 2, I argued that history-as-practice involves conceptualization. To build an event directory is to engage in a specific kind of conceptualization called *modeling*. In this chapter I present a meta-model or set of guidelines for constructing event directories.

Willard McCarty has defined a *model* as "either *a representation of something for purposes of study*, or *a design for realizing something new*."[1] Event directories are models in the first sense because they are intended to represent the past and discourse about the past for the purpose of studying the past. Often this will mean enabling users to answer questions they have about the past. Event directories may directly answer some basic questions, but more often they will function to help users find other resources that may answer those questions. Furthermore, by enabling users to explore representations of the past and orient themselves to discourses about the past, they also function to help users formulate new questions about the past.

Event directories are also models in McCarty's second sense. In chapter 3, I argued that the already-permeable boundaries between history-as-practice and knowledge organization, and between the different forms of knowledge organization practiced in libraries, archives, and museums, are liable to disappear completely in a networked digital environment. I have thus tried to position the creation and use of event directories as an example of a new kind of collaborative scholarship and organizational practice. Academics, librarians, teachers, public historians, curators, archivists, documentary editors, genealogists, and independent scholars might all contribute to event directories as shared infrastructure for linking and organizing historical discourse. Thus event directories are also a kind of design for bringing about a new way of doing history.

McCarty suggested that while concepts tend to be left implicit, models are made explicit (though the assumptions underlying the models may be left implicit). Models are recognized

1. Willard McCarty, *Humanities Computing* (Basingstoke, England: Palgrave Macmillan, 2005), 24.

as constructs to be pragmatically manipulated, while concepts may be viewed as simply evolving. Furthermore, McCarty argues that disciplines have tendencies toward viewing their practices of conceptualization one way or the other:

> The difference between 'concept' and 'model' [is] a function of discipline ... The more schematic the conceptualization in a discipline, the more its practitioners are likely to engage with models rather than concepts.[2]

So for example sociologists have a tendency to view their practices of conceptualization as modeling, while historians generally do not. But the split can be seen within the discipline of history as well. Traditional history that constructs portraits using the techniques of realist narrative representation aims to make its conceptualizations as implicit and transparent as possible, so that audiences feel they are experiencing the past itself rather than a representation of it. On the other hand, a quantitative historian who builds an econometric model of grain prices in medieval Germany is much more likely to explicitly acknowledge the status of his model as a model. In both cases, however, there is a portrait being constructed. The difference is in the degree to which the portrait is presented as something that can be purposefully manipulated to look at the past in different ways. A traditional historical narrative *is* a model of the past, but it does not call attention to itself as such.

The advent of computing, McCarty argued, sharpened the distinction between concept and model:

> Two effects of computing sharpen the distinction between 'concept' on the one hand and the 'model' on the other: first, the computational demand for tractability, i.e. for complete explicitness and absolute consistency; second, the manipulability that a digital representation provides.[3]

These are precisely the effects that have driven quantitative historians and now "digital historians" to view their portraits as models. They are also the effects that govern the design of event directories for a digital environment. For event directories to function as digital software, the often fuzzy and "soft" conceptualizations of events and periods found in history must be made tractable. The benefit of doing so is greater manipulability: the ability to link and unlink models at will, to make new connections among heretofore isolated portraits, or to discard or elaborate parts of models as needed to investigate specific questions. This manipulability comes at a price: the procrustean simplification of concepts.

In the following sections I present a set of design principles and patterns for building historical event directories. In keeping with the dual requirements to aid exploration of a postulated past and orientation to historical discourse, I advocate a two-tiered structure for event directories. The first tier focuses on modeling events and their relations to concepts including time, place, and the characters that participate in them. The second tier builds upon the first tier by additionally

2. McCarty, *Humanities Computing*, 24–25.
3. Ibid., 25.

modeling the acts of configuration that assemble events into intelligible periods. This division into tiers reflects a distinction made by many of the philosophers discussed in chapter 4.[4]

The distinction between events and periods has nothing to do with duration or importance. The difference is solely a matter of whether the entity in question is articulated or comprehended through an individual statement or through a narrative synthesis. For example, the sentence *The French revolted in 1789*, by means of the verb *revolted*, articulates the French Revolution as an event. The sentence communicates the ideas that something happened, and that it happened in 1789, and that what happened was of a type of happening designated by the meaning we associate with the verb *revolt*.

On the other hand, a text like Jules Michelet's *Histoire de la Révolution française* articulates the French Revolution not as a solitary event, but as a period.[5] It does this by *narrating* the Revolution, building up a representation by collecting together events articulated through individual statements. A narrative is a collection of statements that, by virtue of being narrated, is given a unity of meaning greater than the sum of its parts. Or, to put it another way, not every collection of statements is a narrative, only those collections of statements that have been purposefully put together by a narrator to tell a story. And just as an individual statement, by virtue of its verb, articulates an event, so does a narrative articulate a period. A period is a collection of events that have been selected by a historian in order to delineate a particular view on the past.

A theoretical distinction between an event articulated though a statement and a period articulated through a narrative could be made even if there were only one historian and one history-as-portrait. But the distinction really only becomes useful when we have a multitude of historians and narratives. Events allow us to link different histories-as-portrait, while periods allow us to contrast them.

Events provide the means by which connections can be made among different histories. As discussed in section 5.1, we often want to assert that different sentences or statements in different histories refer to the same event. Without the assumption that such assertions are possible, history-as-practice could not exist. Disagreements over particulars such as locations or dates of events imply agreement that the various positions taken have a shared referent (the event). If there were no shared referent there could be no disagreement, since the historians would be talking about different things.

Disagreements highlighted by different statements that refer to the same events are factual disagreements, potentially resolvable through the discovery of new evidence. But factual disagreement is not the most common nor the most important kind of disagreement that arises in historical discourse. Most disagreements among historians do not involve matters of fact, but matters of interpretation. As Danto observed,

4. The specific analysis given here largely follows that found in Michael C. Lemon, "The Structure of Narrative," in *The History and Narrative Reader*, ed. Geoffrey Roberts (London: Routledge, 2001), 107–129. Where Lemon uses the terms *occurrence* and *event*, I use the terms *event* and *period*. Although I find Lemon's analysis useful for making clear these two levels of historical meaning-making, I do not agree with his particular brand of narrative realism, which posits that historians "discover" objectively existing periods much as archaeologists uncover buried artifacts. My position is closer to that presented in Ankersmit, *Narrative Logic*. Ankersmit's *narrative substance* is similar to what I call a *period* here, except that where Ankersmit insists that a narrative substance literally consists of sentences and thus can only be articulated through a historical text, I take the position that a period can also be articulated through non-textual media such as films or museum exhibits.

5. Jules Michelet, *Histoire de la Révolution Française*, ed. Gérard Walter (Paris: Gallimard, 1952).

> Just which happenings there and then are to be counted part of the temporal structure denoted by 'The French Revolution' depends very much on our criteria of relevance. Doubtless there are shared criteria so that no disagreement exists over certain events. But insofar as there is disagreement over criteria, the disputants will collect different events and chart the temporal structure differently.[6]

As discussed in subsection 2.2.2, the construction of periods involves judgments, and these judgments

> have a different status and function from factual statements. The relation between interpretative judgments and the particulars used to support and illustrate them is different from the relation between statements of fact and their evidence, or between generalizations and their instantiations ... The interpretative judgments serve ... partly as *organizing principles* ... They provide *criteria of relevance* for the selection and emphasis of facts.[7]

Differences of interpretative judgment are only made visible by comparing multiple narratives to see how the periods that they articulate differ and how they overlap.[8]

So events and periods can be used to model the structure of an individual history, but they take on added salience when we are concerned with not just a single history but a profusion of histories, generated in parallel by contemporary historians and in sequence by different generations of historians. At one extreme, an event directory records decisions made by an individual historian about how to represent the structure of some period in terms of individual events. At the other extreme, an event directory might be trying to establish common event referents, or common structure within periods, across a wide swath of historical discourse. The two-tier approach presented here is intended to be applicable across the spectrum defined by these two extremes.

For details on how the principles presented here can be implemented using a specific modeling language, please see the appendices. In appendix A I present a vocabulary of classes and properties for modeling historical events, defined using the World Wide Web Consortium's Resource Description Framework (RDF) and Web Ontology Language (OWL).[9] An example of an event modeled using this vocabulary is given in appendix B. In this chapter I avoid specific reference to the technical details of these vocabularies and instead focus on a high-level description of the principles they incorporate.

6.1 Modeling Events

Histories consist of individual statements. In texts, statements are expressed by sentences.[10] Some sentences have verbs expressing action or change. These kinds of verbs imply or, as Davidson puts

6. Danto, *Narration and Knowledge*, 166.
7. Stalnaker, "Events, Periods, and Institutions," 176.
8. Ankersmit, *Narrative Logic*, 104.
9. The vocabulary for modeling historical events is also explained in greater technical detail in Ryan Shaw, Raphael Troncy, and Lynda Hardman, "LODE: Linking Open Descriptions of Events," in *The Semantic Web*, ed. Asunción Gómez-Pérez, Yong Yu, and Ying Ding, vol. 5926, Lecture Notes in Computer Science (Berlin: Springer, 2009), 153–167, doi:10.1007/978-3-642-10871-6_11, http://www.springerlink.com/content/c3385u550313p281.
10. It is also possible to conceive of statements as being expressed by photographs, movie shots, or exhibit labels.

it, have "places for" events.[11] The verb "to march" has a place for a subject, in that it implies that there must be some person or group who marches. In English sentences subjects are nearly always made explicit, but in some other languages, such as Japanese, subjects are often left implicit. Similarly, verbs like "to march" have may leave their events implicit, as in the sentence *In 1963 hundreds of thousands marched on Washington in support of civil and economic rights*, or they may make them explicit, as in the sentence *In 1963 there was a march on Washington for civil and economic rights*. By virtue of the way our languages (and presumably our minds) work, when we formulate statements describing action or change we assume the existence of events. This is the case whether or not there is a word or phrase in a sentence that can be explicitly identified as the name of or referring to an event.

To model an event, then, is to make explicit the entities implied by statements of action or change. The goal is to enable interoperable modeling of the "factual" aspects of events. Factual aspects can be characterized in terms of the four *W*s: *what* happened, *where* did it happen, *when* did it happen, and *who* was involved. The answers to these questions link people, things and activities to particular times and places, allowing users to navigate from resources that depict or describe any of these elements to resources that depict or describe any other of these elements.

Factual relations within and among events may reflect either a single historian's statement of "what happened," or they may represent intersubjective "consensus reality." In either case, at this level the focus is on historical statements independent of the larger perspective, interpretation, or discourse of which they are a part. Thus this level excludes properties for categorizing events or for relating them to other events through parthood or causal relations. These aspects belong to the interpretive dimension modeled in the second tier.

6.1.1 Events and Time

As opponents of the "date-memorization" school of history education often argue, the dates of events are not important in and of themselves. However, as Mink noted,

> the date of an event is functionally an artificial mnemonic by which one can maintain the minimum sense of its possible relation to other events. The more one comes to understand the actual relations among a number of events, as expressed in the story or stories to which they all belong, the less one needs to remember dates. Before comprehension of events is achieved, one reasons from dates; having achieved comprehension, one understands, say, a certain action as a response to an event, and understands this directly.[12]

Dates are chronological markers, like longitudes and latitudes are spatial markers. Longitudes and latitudes can be used to define regions of space, and likewise dates can be used to define spans of time. But spans of time need not be defined in terms of dates. They can also be defined relative to other spans of time. Or a span of time may be defined only in terms of its duration, unmoored from the any specific chronological location identifiable via dates.

11. Davidson, "The Logical Form of Action Sentences," 119–120.
12. Mink, "History and Fiction as Modes of Comprehension," 555.

Just as we can distinguish dates from the spans of time they demarcate, so we can distinguish spans of time from events. A span of time is a totally abstract entity, describable in purely mathematical terms. An event is a chunk of meaningful activity understood to occupy a span of time, which can potentially be given absolute coordinates using dates. The relationship between dates and events is thus analogous to the relationship between places and spatial coordinates. Instances of the former have persistent, socially attributed meanings, while the latter are arbitrary systems for subdividing an abstract space.

Dates and times, then, are simply means to an end. By using dates and times to demarcate spans of time and linking these spans of time to events, we can better understand the relative temporal positions of those events. This understanding is necessary to develop a more substantive understanding of how events are related. Indeed, to successfully communicate about events at all we need a common framework of time:

> In order to carry out effective communication, we need to be able to share units and shapes of time ... A structure of record keeping will subtend this common time, rendering it useful through permitting the collocation of accounts of ... events.[13]

Relating events to spans of time (and ultimately to dates and times) is thus the most important aspect of event modeling.

While events and spans of time are distinct, we need not explicitly model the latter. As Davidson put it, "For most purposes, if not all, times are like lengths—convenient abstractions with which we can dispense in favour of the concreta that have them."[14] If we dispense with spans of time, we can assign dates directly to event instances, i.e. as the values of `begin` and `end` attributes—if we can agree on what they are. The advantage of associating dates directly with events is simplicity: there are fewer abstractions to deal with, and it is simple to filter or sort events using standard date parsing and comparison routines. Associating dates directly with events also makes it simple to export lists of events for visualization on a timeline.

But the tradeoff for this simplicity is an inability to express more complex relationships to time, such as spans of time that do not coincide with date units. This can be problematic for modeling historical events. Two problems in particular arise: uncertainty and vagueness.

A historian may be uncertain about the time of an event due to a lack of evidence. In such cases the historian may offer minimal and maximal bounds on the span of time. To handle cases like this, it is better to introduce a class for representing spans of time and to define relationships that link event instances with instances of this class. One can then assign dates to spans of time rather than directly to events. By introducing classes for representing spans of time, one can use Allen's temporal calculus for reasoning about these more relationships among spans of time.[15]

For example, suppose the precise date of a historical event is not known, but some boundaries can be established within which it must have occurred. In this case the time between these boundaries can be represented as a span of time, and a containment relationship can be asserted between that span and the (unknown) span during which the event occurred.

13. Bowker, *Memory Practices in the Sciences*, 10.

14. Davidson, *Essays on Actions and Events*, 139.

15. James F. Allen and George Ferguson, "Actions and Events in Interval Temporal Logic," *Journal of Logic and Computation* 4, no. 5 (1994): 531–579, doi:10.1093/logcom/4.5.531, http://logcom.oxfordjournals.org/cgi/doi/10.1093/logcom/4.5.531.

The second problem is vagueness. When modeling the temporal extent of events, as when modeling events in general, one can choose to model a single statement by a single historian or to model a "consensus view" over some set of statements by different historians.[16] When modeling a "consensus view" of the time of an event, there may be (in addition to uncertainty) some vagueness about the span of time associated with the event. Quine compared the boundaries of events to the boundaries of mountains; in both cases we "delimit the object to the degree relevant to our concerns."[17] Different historians have different concerns and will thus delimit events differently even if they agree that they are delimiting the "same" event.

This disagreement should be modeled at the interpretive level—what I have been calling the second tier. In the first tier, the span of time associated with an event should reflect either a single historian's (possibly uncertain) assertion, or it should summarize some set of different assertions. For example, one might summarize a set of different spans of time by choosing the shortest span that includes all the ones being summarized, or by calculating the means of the beginnings and ends of the different spans. In either case, for logical operations an event should be associated with at most one span of time: multiple spans of time imply multiple events.

6.1.2 Events, Spaces and Places

Locating an event on a map or finding things near an event only requires that the event be associated with an abstract spatial region. But just as a distinction can be made between events and abstract spans of time, a distinction can be made between semantically significant places and abstract spatial regions.

Being able to associate an event with a semantically significant place allows one to make assertions about events set in places not easily resolvable to geospatial coordinate systems. For example, scholars of ancient history may work with documents that do not distinguish between real and mythical events. These scholars may wish to indicate that some event is recorded as having occurred at a mythical place. Similar problems are posed by some contemporary events that are characterizes as happening in virtual places such as online environments. In both cases it is convenient to be able to associate events to places without having to specify geospatial coordinates for them.

Furthermore, making a clear distinction between places and spatial regions enables one to deal properly with the phenomenon of places changing their absolute spatial location over time. W. G. Sebald told the story of the town of Dunwich in England, which, due to coastal erosion, steadily relocated westward.[18] An event set in the thriving seaport of 12th century Dunwich is associated with a spatial location that is now several meters beneath the sea, well to the east of an event set in the contemporary village of Dunwich. Yet, one might like to capture the fact that the locations of these two events are linked by the continuously existing place called Dunwich. Unless we can distinguish between the place called Dunwich and the geospatial locations it has occupied at different times, such nuance is not possible.

16. The latter assumes that one has developed some criteria for deciding that the different statements should be modeled as referring to one event rather than several; see section 5.1.

17. Quine, "Events and Reification," 168.

18. Winfried Georg Sebald, *The Rings of Saturn*, trans. Michael Hulse (New York: New Directions, 1998), 155–159.

An event can be associated with an abstract region to subjectively impose spatial boundaries on an event so that, for example, it can be displayed on a map or retrieved by an geospatial search algorithm. To simplify calculations like spatial containment, an event should be directly associated with at most one such region. In cases where there seems to be a need to directly associate an event with multiple spatial regions, the event should be associated with the set of these regions.

Often it will be more convenient or desirable to express relationships to socially defined places rather than to physically defined spaces. Thus there needs to be a flexible way to associate an event with some meaningful place(s), whether or not it is possible to define spatial boundaries for those places. An event can be related to any number of places. Links to places should not use place names, but identifiers from a gazetteer. In this way (where the gazetteer provides coordinates or areas for places) links to places are also indirect links to spatial regions. If the gazetteer is time-indexed, then the span of time associated with the event can also be used to discover not just the current location of the place, but whatever is known about its location at the time of the event.

6.1.3 Participation in Events

While the time and place dimensions are crucial for describing events, we are usually interested in events because of the characters—people or organizations—or things involved in them. Thus we need to model relationships linking characters and things to events.

At the very least, a model of a relationship between an event and something else can simply assert that the event and the thing are related in an unspecified way. But it may assert more than that, for example that the thing was *present at* the event. Or one may wish to assert that a given event *changed* some thing: the Indian Independence Act changed India from a British colony to an independent republic on 15 August 1947. Particularly important kinds of changes are creation and destruction: the aforementioned Act could also be modeled, not as having *changed* the independent status of India, but as having *destroyed* the colony of India and *created* the Republic of India.

When the thing being related to an event is a *character* (i.e. something characterized as having agency), then the relationship may assert that the character took an active role in the event such as causing it to happen. More sophisticated modeling schemes may enable one to model the roles themselves. For example, suppose one is modeling the participation of the characters Brian Boru and Máel Mórda mac Murchada in the Battle of Clontarf. One might want to further characterize this relationship by stating that the Battle of Contarf is a `battle`, that battles have `commander` roles, and that Brian and Máel Mórda fill the `commander` roles.

Detailed modeling of how an objects are related to events or how characters participate in events may of interest in specific domains. Yet greater specificity makes it less likely that connections can be made across domains. For example, while there may be wide consensus that Robespierre participated in the French Revolution, opinions may vary widely as to how to model his specific role. As with any modeling the level of detail is properly situational, depending on the purpose of the model, the availability of data, the potential benefit and estimated costs. For that reason it is preferable to define some very general, broadly applicable relation types that can then be specialized for various purposes.

Thus I recommend defining a single generic relation type for linking an event to anything whatsoever—people, civilizations, artifacts, abstract ideas—that one might want to characterize as being "involved" in an event. Since it is often desirable to distinguish characters from other

things involved in events, an additional relation type can be defined for linking an event to any character participating in an event. Since participation is a form of involvement, this latter type is a subtype of the former.

Involvement and participation do not imply anything beyond simple relatedness. In particular, they do not imply causation, active intent, passive influence, transformation, and so on. These are all judgments that belong to higher-level interpretations or more domain-specific models of events. Relations of causality, purpose, or influence are discussed further in the following section.

6.1.4 Types of Events

One way to distinguish types of events is their *aspect*, i.e. whether the event involved is an ongoing state or a transition between states. For example, "studying at a university" is typically treated as a state, while "matriculation" and "graduation" and treated as transitions between states. The former denotes a situation in which some state of affairs has persisted throughout the situation's span of time, while the latter denote situations in which some change has occurred during the situation's span of time.

Another way to classify events is on the basis of *agentivity*. Agentivity indicates whether there is some person, thing, force, etc., that is identified as having produced the event, i.e. whether there is an agent identified. This is the distinction sometimes made between *actions* and other events.

One potential problem with building these types of classifications into an ontology for modeling things that happened is that they force one to adopt a particular perspective on what happened. This is desirable for precise modeling in specific domains that share a descriptive paradigm, but it is undesirable if the goal is to enhance access to documents which may present different interpretations of the same events. Distinctions based on aspect or agentivity are not necessarily inherent in what happened, but instead are rooted in particular interpretations. Whether a historical event or a event reported in the news involves an identifiable change or not, or whether agency can be assigned, is often a matter of debate, and its resolution should not be a prerequisite for representing what happened using a concept from an ontology.

In keeping with the goal of modeling only intersubjectively agreed-upon "facts" about events in the first tier, judgements of aspect or agentivity should be relegated to the second tier. Users are then free to model events without having to take a position on what has changed or where agency lies.

6.1.5 Example Event: Berkman Began Writing

Figure 6.1 shows an example of how one might model the event described by the sentence *During the summer of 1910 Alexander Berkman began writing* Prison Memoirs of an Anarchist *at Emma Goldman's farm in Ossining, New York*. The event itself, `began writing`, is nearly a non-entity: virtually everything known about it is represented via the relations it has with other entities. It is assumed in all cases that these other entities are drawn from controlled vocabularies. Thus they are not simply textual values of attributes of the event, but are references to other entities that may have their own attributes and relationships. For example, the relation to Alexander Berkman could be reference to a specific name authority record, and the relation to *Prison Memoirs of an Anarchist* could be a reference to a work-level record in a catalog.

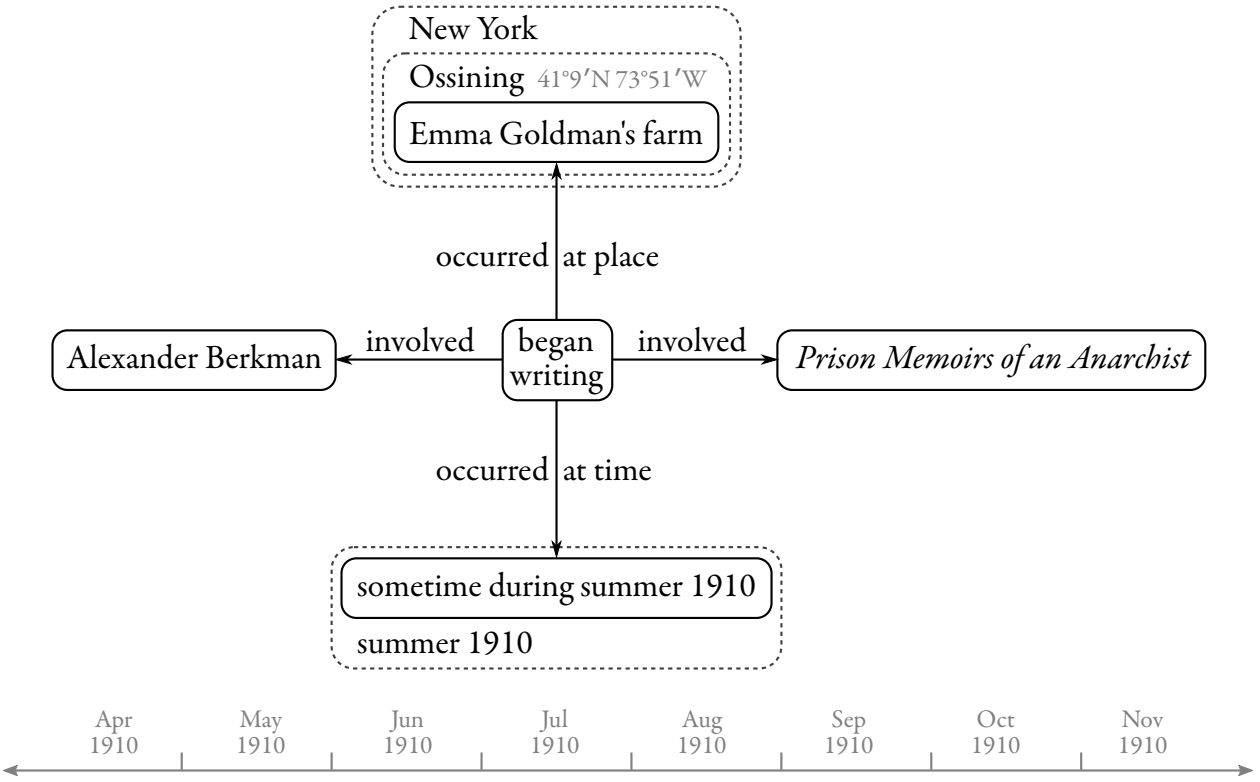

Figure 6.1: A model of the event described by the sentence *During the summer of 1910 Alexander Berkman began writing* Prison Memoirs of an Anarchist *at Emma Goldman's farm in Ossining, New York*. (The timeline across the bottom is only intended to show how `summer 1910` is situated in a standardized chronology. The timeline does not bear any relation to the other entities in the model.)

It is these two relations that distinguish the event as a unique entity, since a given author can only begin a given book once. There is no attempt to characterize the relationships beyond "involvement." Of course it would be possible to further specify these relationships, perhaps by specifying that the event here is an instance of a class of `Writing` events, which have roles for `author` and `work`. But this is unnecessary to achieve the basic goal of linking this event to Alexander Berkman and *Prison Memoirs of an Anarchist*. Since further modeling of the relationships could be complicated and expensive, there is no reason to do it unless it is needed. In the case that someone does find it worthwhile to model the relationship in more detail, any more detailed model will be compatible with the basic model since it asserts nothing more than an unspecified involvement.

The event is modeled as occurring at Emma Goldman's farm. There may not be any vocabulary or gazetteer that happens to have `Emma Goldman's farm` as a term, so it may be necessary to construct a place record to be included in the event model. That place record need do nothing more than label the place as `Emma Goldman's farm` and link it to other places that can be found in standard gazetteers. In this case the place is linked to Ossining, New York (specifically, it is asserted to be *within* Ossining). Again, it is assumed that the linking is done using identifiers drawn from gazetteers or controlled vocabularies, so that there is no confusion between (for example)

the town of Ossining and the village of Ossining. Once the link has been made to an adequate gazetteer, other information can be easily obtained, such as the fact that Ossining is in the state of New York in the northeast United States. Thus the event has now been linked to a whole network of places, as well as to a specific set of geographic coordinates.

Finally, the event is modeled as occurring sometime during summer 1910. Again, `sometime during 1910` is not a span of time likely to appear in an existing controlled vocabulary, so an ad-hoc temporal interval record can be constructed and included in the event model. Since (at least for the purposes of this model) we know nothing more specific about when Berkman began to write his book, and because beginning to write a book is an event of vague duration, we need say nothing more about this span of time except to say that it is subsumed by a longer span of time, `summer 1910`.[19] Because "summer" has a more-or-less standard definition, we might expect to find it in some controlled vocabulary. If not, we can construct another temporal interval record and specify its boundaries using standard date representations.[20]

6.2 Modeling Periods

Individual statements link occurrences to time, place, and other involved things. But a historian does not just produce individual statements. He aggregates statements into a narrative, which fleshes out some the individual concept that I have called a period. While events are entities implied by the logical form of individual statements, periods are forms created through the historian's narrative.

The model proposed here is a simple one: a period consists of a set of events. Borrowing Mink's terminology, I say that the period *configures* the events that constitute it. By this I mean to emphasize that a period reflects a particular configuration of events as developed in a specific history-as-portrait, or is a generalization of configurational decisions made in some collection of histories-as-portrait. These decisions encompass a number of kinds of relations among events that could conceivably be modeled, including causality and parthood.

In historical discourse, there is often a lack of consensus about relations of causality, purpose, or influence. Furthermore, these relations are rarely asserted in terms of direct relations between events. Thus simple one-to-one relationships are unlikely to to be adequate for modeling assertions about such relations. Rather than directly linking two events via a property expressing (for example) causality, it is better to model the fact that the events are included in a larger construct—a narrative—that expresses something about the relationship among the events that belong to it. The narrative includes not only the events being classified as the cause and the effect, but also the wider context under which causality is being asserted. In other words, the narrative is a specific interpretation of the events and how they are related. Multiple, potentially conflicting

19. Note that this approach to modeling when Berkman began his memoir does not preclude the creation of other events indicating when Berkman was known to be elsewhere, potentially narrowing the span of time when he could have been in Ossining.

20. In this case, because `summer 1910` is being referenced simply to set some fuzzy bounds on the shorter span `sometime during 1910`, it does not matter which precise definition of "summer" is used (for example a meteorological or an astronomical definition). In other cases it may be desirable to define spans of time more strictly. Another advantage of separating the modeling of events from the modeling of spans of time is that it decouples decisions about how to model the former from decisions about how to model the latter.

causality relations can be asserted for the same set of events by specifying different interpretive contexts in which the relations are made.

A similar case can be made for parthood relations. Often, it is desirable to model an event A as being part of some other event B. While an event A's being part of event B implies that event B's timespan contains event A's timespan, event parthood is more than temporal containment. One may get married during the Olympics, but that does not make one's marriage part of the Olympics. Thus, event vocabularies must distinguish between mere temporal containment and mereological relationships between sub-events and some greater event. Ontologies that make a distinction between temporal spans and events can clearly distinguish between the two types of relationships, as the former apply to time spans while the latter apply to events.

Certain kinds of ritualized events, such as religious ceremonies, legal proceedings, or sporting events have "true" parts, in that certain things must happen for one to consider the larger event to be an event of that kind. More often, however, what we call "parts" of events reflect the fact that we sometimes model aspects of the world as consisting of layers at different levels of abstraction, which are not strictly parts of one another. Thus for example society is constituted of individual people, even though you might not necessarily want to say that people are "parts" of society because people and societies exist at different levels of abstraction. This distinction is useful for events as well, as it allows us to describe a large and complex period like the French Revolution as being constituted of many smaller events, even though these smaller events are not "parts" of the larger period in the same sense that a set is part of a tennis match, and different interpreters may divide the French Revolution into smaller events in different ways.

Parthood then can be handled in much the same way as causal relations. Different narratives about the "same" period may be composed of different events, or the "same" event may be part of narratives constructing different periods. For a narrative to be understandable the narrator must be selective about which events to include. Selection can vary with the narrator's perspective, the intended audience, available evidence, and so on. The conditions under which an event is considered to be part of a period are part of the larger context in which the "containing" period is narrated.

Furthermore there may be multiple, potentially conflicting decompositions of the "same" period. Robert Stalnaker observed that "the relation between terms like "the Enlightenment" or "the Peloponnesian War" and the descriptions of actions and smaller events which *constitute* the event or period, or through which the period or event is *manifested* is not something stipulated, or is not a logical or meaning relation."[21] This is just another way of stating Ankersmit's observation that decisions about what constitutes a period can only be made pragmatically and not logically (see subsection 2.2.2). A model of a period should reflect this by explicitly stating whose pragmatic decisions it reflects.

There are three possibilities. The first possibility is that the model is an original work of scholarship, in which case, as with other works of scholarship, it should be attributed to an author and sources of evidence should be clearly cited. The second possibility is that the model is an abstraction of some other history-as-portrait. For example, someone might wish to extract "key events" from a particular book about the civil rights movement, in order to provide a kind of index to the book and to link its content to other resources. In this case the model of the period "the civil rights movement" is linked to a single history-as-portrait. The third possibility is that the model is a gen-

21. Stalnaker, "Events, Periods, and Institutions," 177.

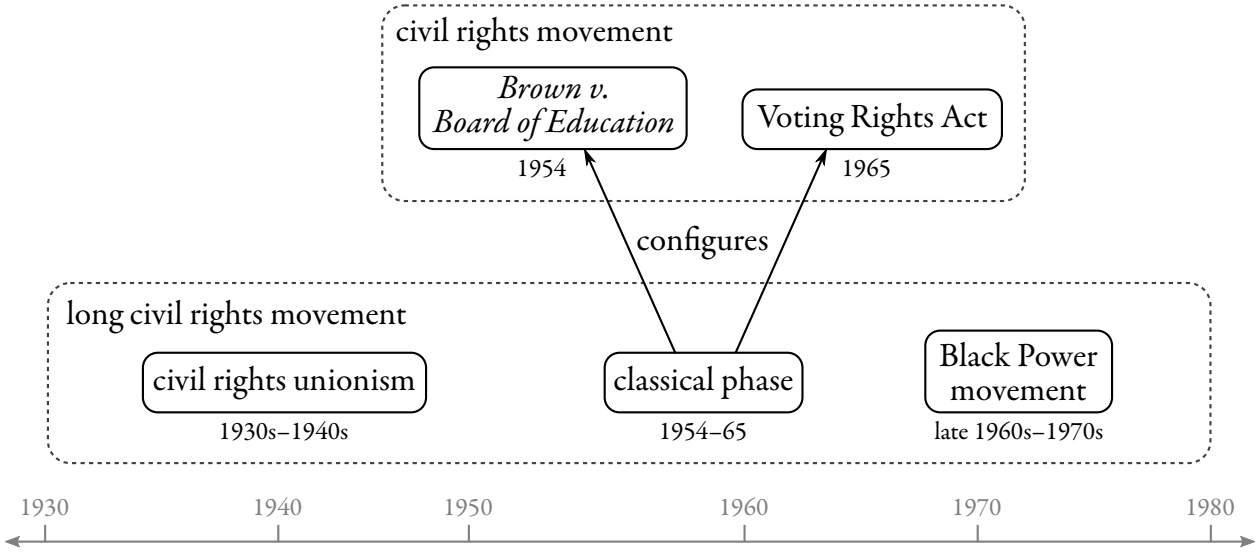

Figure 6.2: A model of two alternative periodizations proposing views of the civil rights movement. The first period is the traditional view, beginning with *Brown v. Board of Education* and ending with the Voting Rights Act. The second period is the "long" view, in which the traditional whole is seen as just a phase in the larger movement. Each whole is said to *configure* the events it contains.

eralization about some set of histories, perhaps produced algorithmically. On this case the model should be clearly linked to the collection of histories on the basis of which it was constructed.

6.2.1 Example Period: The Civil Rights Movement

The historiography of the civil rights movement in the United States provides a compelling example of how periods coalesce around dominant narratives and change with scholarly trends. According to Steven F. Lawson, scholars began to produce historical portraits of the civil rights movement in the late 1960s and 1970s. This first generation of scholars focused on "leaders and events of national significance" and "conceived of the civil rights struggle as primarily a political movement that secured legislative and judicial triumphs.".[22] In other words, their characters were great men and women, and their events were short, sharp political events of the kind Braudel wished to move beyond (see section 4.6).

Lawson discerned a second generation of civil rights scholarship, starting in the late 1970s and 1980s, that moved away from individuals to focus on "local communities and grass-roots organizations."[23] This in turn was followed by a third generation in the 1990s that sought to integrate the concerns of the earlier generations along with long-term structural factors such as economic constraints, the geopolitical situation, and attitudes toward race and gender. This third generation is recognizably the kind of history written at different time-scales Braudel called for.

22. Steven F. Lawson, "Freedom Then, Freedom Now: The Historiography of the Civil Rights Movement," *The American Historical Review* 96, no. 2 (1991): 456, http://www.jstor.org/stable/2163219.

23. Ibid., 457.

Yet despite the shifts they made in conceptualization of the civil rights movement over these three generations, scholars maintained a conventional chronology for the movement. This chronology began with the U.S. Supreme Court ruling in *Brown v. Board of Education of Topeka* in 1954 and ended with the Voting Rights Act of 1965.[24] Just as Rigney observed in her study of histories of the French Revolution, the development of a body of scholarship on the civil rights movement presupposed "a prior mapping out or organisation of the theoretically open [eventworthy] field: certain events [were] already seen as together constituting coherent episodes."[25]

Veyne likened historian's narratives to itineraries through the field of possible events:

> The itinerary chosen by the historian to describe the eventworthy field can be freely chosen, and all the itineraries are equally legitimate (though not all are equally interesting). Having said that, the configuration of the event-worthy territory is what it is, and two historians who may have taken the same road will see the territory in the same way, or will discuss their disagreement very objectively.[26]

Historians may choose their own paths through the field of possible events, but scholarly community and meaningful discussion require that they travel some of the same paths. At the intersection of the more well-traveled paths lie events like *Brown v. Board of Education*, which become taken for granted as landmarks, "sites to be visited" on "a pre-arranged itinerary marking out the recommended scenic route (and the beaten track) from one major point of interest to the next."[27] By the end of the twentieth century, the dominant narrative of the civil rights movement had become a well-beaten path not only among scholars but in popular understanding, and the 1954–1965 timeframe was "embedded in heritage tours, museums, public rituals, textbooks, and various artifacts of mass culture."[28]

In the past decade, however, a fourth generation of scholars has sought to broaden this itinerary, telling

> the story of a "long civil rights movement" that took root in the liberal and radical milieu of the late 1930s, was intimately tied to the "rise and fall of the New Deal Order," accelerated during World War II, stretched far beyond the South, was continuously and ferociously contested, and in the 1960s and 1970s inspired a "movement of movements" that "def[ies] any narrative of collapse."[29]

The effort to portray a "long civil rights movement" is not just about paying greater attention to the antecedents and consequences of "the" civil rights movement. Jacquelyn Dowd Hall, one of the foremost proponents of the long civil rights movement, makes this clear in her declaration that "civil rights unionism"—the loose coalitions of radical and liberal labor and civil rights activists formed in the 1930s and 1940s—"was not just a precursor of the modern civil rights

24. Sundiata Keita Cha-Jua and Clarence Lang, "The 'Long Movement' as Vampire: Temporal and Spatial Fallacies in Recent Black Freedom Studies," *The Journal of African American History* 92, no. 2 (2007): 266–267.
25. Rigney, *The Rhetoric of Historical Representation*, 36.
26. Veyne, *Writing History*, 36.
27. Rigney, *The Rhetoric of Historical Representation*, 37.
28. Hall, "The Long Civil Rights Movement," par 1.
29. Ibid., par 5.

movement. It was its decisive first phase."[30] Hall and like-minded historians want to expand the period referred to as "the civil rights movement" to stretch far beyond the 1954–1965 time frame to a 1930s–1970s time frame, or even longer.

Figure 6.2 shows a very simplified model of these two alternative periodizations proposing views of the civil rights movement. Each period configures a set of events. In the case of the "traditional" civil rights movement, the earliest of these events is *Brown v. Board of Education* and the latest is the Voting Rights Act.[31] The "long" civil rights movement also configures these events, but now as part of a whole called "the classical phase." The broader whole of the long movement additionally configures a host of other events, beginning with the "civil rights unionism" of the 1930s and 1940s and ending with the Black Power movement of the late 1960s and 1970s. Here I have treated civil rights unionism and the Black Power movement as events, but of course, like "the classical phase" they could also be modeled as periods, with their own itineraries of major points of interest.

The new period called the long civil rights movement has been enthusiastically adopted by historical scholars (if not yet by popular culture), to the point where it is now considered to be the "newly dominant" consensus view.[32] But it is not uncritically accepted, and the struggle to define a period called "the civil rights movement" is far from over. Critics of the long version of the whole take issue with the fundamental elements of historical conceptualization. Critics worry that expanding the cast of characters to include Communist organizations, women's rights activists, radical labor parties, and so on risks losing something distinctive, and distinctively African-American, about the civil rights movement.[33] They argue that to expand the setting of the civil rights movement, from something largely confined to the southern United States to something that took place throughout the country and perhaps even the world, amounts to "seeking to erase the Mason-Dixon Line."[34] Most fundamentally, they charge that the long civil rights movement, by blurring differences among a heterogenous set of organizations and activities, renders the ideal type of a "social movement" less clear and thus less useful.[35]

6.2.2 Fuzzy Models

As I have stressed throughout this dissertation, this kind of conflict is the norm rather than the exception when it comes to periodization. Even the model presented here of two competing wholes, while accurately capturing the sense that one conventional framework has given way to another, overstates the consistency with which any given scholar has adhered to either framework. Not every scholar using the traditional definition of the civil rights movement begins her portrait in 1954 and ends it in 1965. The notion of a "traditional" framework is a generalization, albeit one internally recognized by practitioners.

30. Ibid., par 27.

31. For simplicity's sake, I have included only these "boundary" events, leaving out other key events configured by the traditional whole, such as the Montgomery bus boycott and the 1963 march on Washington.

32. Eric Arnesen, "Reconsidering the 'Long Civil Rights Movement'," *Historically Speaking* 10, no. 2 (2009): 34, doi:10.1353/hsp.0.0025, http://muse.jhu.edu/content/crossref/journals/historically_speaking/v010/10.2.arnesen.html.

33. Ibid.; Cha-Jua and Lang, "The 'Long Movement' as Vampire."

34. Ibid., 281.

35. Ibid., 273–274.

Ideally, models of periods would be "fuzzy," reflecting tendencies among communities of historians rather than misleadingly precise delineations made by modelers. A fuzzy model could reflect, for example, that among proponents of the long civil rights movement there is greater consensus about when the long movement started than about when it ended (possibly because many of its proponents argue that it is still ongoing).

This is an area where the automated detection and recognition of events is likely to contribute to the construction of more nuanced and useful event directories. An event extraction process can be viewed as a method for analyzing a corpus of texts to build a statistical model of aggregate opinion about the structure of some period. Chambers and Jurafsky demonstrated that statistical natural language processing techniques could be applied to a corpus of news articles to produce a database of recurrent narrative schemas (coherent sets of events).[36] It is possible that similar techniques, restricted to a corpus of texts on the same historical period, could produce schematic representations of commonly recurring events grouped into periods.

6.2.3 Categorizing Periods

The example of the civil rights movement also highlights the difficulty of typing or categorizing periods. In her report on applying geographical gazetteer standards to periods, Feinberg argued in favor of providing a standard set of categories for periods. The categorization would include broad types such as `period of conflict` and `social movement`, which could then be further specialized for specific domains.

Feinberg noted that some periods might need to be categorized in multiple ways. But she sought to make a clear distinction between two periods of different types with the same name, and one period with multiple types:

> This multiple assignment [of types to a time period] applies only when no single period type adequately describes a single time period, and not when two periods have the same name and duration. For example, the Regency period in England refers to both a period of rule and to a period within architecture. The description of each Regency period, as well as the period type, is different. Here, two period types apply to two different time periods. In the case of the civil rights movement, however, the description is the same; two period types apply to one time period.[37]

But this distinction is untenable. As we have seen, there is not just one civil rights movement of which "the description is the same" yet which can be categorized various ways. The various ways of categorizing the civil rights movement—as a social movement, as a political movement, as cultural or intellectual movement—go hand-in-hand with the various ways of describing or narrating the movement, and thus with the ways of of selecting the events it configures, its temporal and spatial scope, and so on. Furthermore, even to portray the civil rights movement as (for

36. Nathanael Chambers and Dan Jurafsky, "Unsupervised Learning of Narrative Schemas and Their Participants," in *Proceedings of the Joint Conference of the 47th Annual Meeting of the ACL and the 4th International Joint Conference on Natural Language Processing of the AFNLP*, vol. 2 (Suntec, Singapore: Association for Computational Linguistics, 2009), 602–610, doi:10.3115/1690219.1690231, http://portal.acm.org/citation.cfm?doid=1690219.1690231.

37. Melanie Feinberg et al., *Application of Geographical Gazetteer Standards to Named Time Periods* (Berkeley: Electronic Cultural Atlas Initiative, 2003), 12, http://ecai.org/imls2002/time_period_directories.pdf.

example) a social movement is to make a certain kind of argument about what a social movement is, depending on how the whole is narrated. To argue that predefined categories are simply applied to periods is to replicate McCullagh's error of mistaking a heuristic device for a taxonomic one (see subsection 2.2.2).

The civil rights movement, then, is just like the Regency period in that different groups of people have articulated the concept in different ways, by telling different stories that highlight different aspects of the past. In the case of the Regency period, these different groups are split by disciplinary specialization: one group produces "special histories" of architecture while the other produces political history. This split makes it less likely that the two groups will bother debating their different periodizations, but within each group (especially the architectural historians) individual scholars still deviate from the consensus.

The best an event directory creator can do, then, is to be explicit about the particular body of history-as-portrait about which a given model of a period is generalizing. Rather than simply postulating that there is a single civil rights movement which is categorized as both a social movement and a political movement, an event directory might explicitly state that it is modeling two periodizations, where the first is based on the work of Lawson's "first wave" of civil rights historians who portrayed the movement as primarily a political one and the second is based on the work of later historians who portrayed it as a social one.

Chapter 7

Conclusion

Researchers and practitioners of knowledge organization usually think of it as an autonomous field. They view indexing, abstracting, description, organization, and retrieval as activities that can be applied to serve other kinds of intellectual work, which implies that they can be separated from those other kinds of work. Phrases like "indexing for the humanities," "abstracting for history," and "scientific information retrieval" demonstrate this separation: in each case the phrase assumes an autonomous practice of knowledge organization that is then specialized and "applied" to a specific domain.

But this is an artificial separation. Knowledge organization is not an autonomous discipline or practice but an inseparable aspect of modern life in general and of intellectual work in particular. Knowledge organization as a field of study and practice is abstracted from—not applied to—everyday life and intellectual work.

The practice of history is an excellent example of how intellectual work implicates knowledge organization. History is, in a broad sense, a society's effort to orient itself with respect to the past. But it is also one specific way a society orients itself to the "mass of documentation" upon which it depends.[1] History is a way of recognizing documents, including material culture, as survivals from the past and as the potential basis for inquiries about that past. With the goal of answering these inquiries, "history ... organizes the document, divides it up, distributes it, orders it, arranges it in levels, establishes series, distinguishes between what is relevant and what is not, discovers elements, defines unities, describes relations."[2]

Organization, ordering, arrangement, determinations of relevance, description of relationships: these are the kinds of activities typically considered fundamental to knowledge organization. Knowledge organization is not *applied* to history; history *is* knowledge organization towards the end of orienting ourselves with respect to the past. Historians produce knowledge of the past by organizing knowledge of the past: there is no divide with producers of knowledge on one side and organizers of knowledge on the other.

This insight has significant implications for the design of tools and systems for organizing knowledge. In particular, it entails that there are no independent "principles of knowledge organization" that can instantiated in tools and techniques and then taken up by users. Instead, principles of knowledge organization are determined by specific practices of knowledge organization, which are always practices of organizing knowledge for some purpose. In the case of history, the

1. Foucault, *The Archaeology of Knowledge*, 7.
2. Ibid.

principles of knowledge organization arise from the desire to understand some situation in terms of its past and the ways that desire is satisfied, namely the production of history-as-portrait.

The demands and constraints of our technologies and techniques of knowledge organization have tended to obscure these connections, reinforcing the artificial separation of history and knowledge organization. The scholar's "five-by-seven-inch cards" recording "chronologies of events in the lives of the subjects" were "held together with rubber bands" and stored in "metal file boxes" and thus could not be easily connected to the three-by-five-inch cards in the library's card catalog, the dog-eared pages of the archival finding aid, or museum's adhesive labels.[3]

In a digital environment, however, the "bibliographies, notes, personal finding aids, and assessments by scholars of which items are important and unimportant"—what Daniel Cohen calls the "hidden archive"—can be made available and connected to the more formal apparatus.[4] To do so promises to make the process of knowledge organization both more effective and more efficient. The imperative to do this is a major reason to question the false division of labor between history and knowledge organization.

There are a number of problems to be addressed before this vision can be realized. One set of problems springs from the social organization of history-as-practice. A hobbyist researching his family history may be willing to share his notes, until discovering that Aunt Sally was a prominent anarchist or Great-Uncle Edmond was a Nazi. A professor of history may be happy to share her personal annotated bibliography and finding aids—after she gets tenure, or perhaps after she retires. I have argued that history is a form of knowledge organization, but professors of history are unlikely to warmly embrace the idea that that they do not have a clearly established identity separate from that of librarians, archivists, and curators, given the differences in status they enjoy.[5]

A second set of problems, which I have focused upon in this dissertation, involves the wide "semantic gap" separating conceptualization as practiced by historians and the formalization of those concepts in systems of knowledge organization. This gap is due in part to the drag of existing technologies and techniques on the practice of knowledge organization: while historians have been free to innovate new conceptualizations of the past, librarians, archivists and curators often find themselves "straitjacketed" by legacy systems.[6]

Now, however, we have an excellent opportunity to redraw our maps of knowledge. Books, manuscripts, artifacts and even buildings are being digitized or "born digital" at a fantastic rate. The Web has grown into a ubiquitous standard infrastructure for integrating knowledge organization systems at every scale, from tools for individual researchers to massively collaborative databases. These two developments allow us to quickly and easily build large corpora of texts, images and other media. Advances in parallel computing and statistical analysis have given us powerful tools for finding patterns in these corpora. New approaches to creating and managing metadata promise to move us from "one-size-fits-all" metadata records, created once and rarely updated, to flexible records assembled "on the fly" from constantly updated data feeds.

To take advantage of the opportunity presented by these new tools and techniques, however,

3. Case, "The Collection and Use of Information," 72.

4. Daniel J. Cohen et al., "Interchange: The Promise of Digital History," *The Journal of American History* 95, no. 2 (2008): 481–482.

5. McCarty identified this difference in social distinction between scholars and practitioners as one of the obstacles blocking the emergence of a genuine field of humanities computing. McCarty, *Humanities Computing*, 114–157.

6. Robert J. Rubanowice, "Of Librarians and Historians: Intellectual History and the Organization of Knowledge," *The Journal of Library History* 10, no. 3 (1975): 264–271.

we must come to a more sophisticated understanding of what it is we are doing when we organize knowledge and why we are doing it. We should recognize the artificiality of the boundaries dividing knowledge organization from history-as-practice and the boundaries dividing different genres and traditions of knowledge organization from one another. Above all, we must successfully navigate between "the lure of the abstract and the tyranny of the particular."[7] We must try to design systems of knowledge organization that are neither totalizing ideals, nor catalogs of dull facts, but that reflect the rich diversity of modeling, interpretation and belief that characterize history-as-practice, or indeed any humanistic endeavor.

7.1 Contributions

With that goal in mind, in this dissertation I have presented a theory of concepts to guide the design of tools that organize historical knowledge and provide access to and understanding of historical documents. I put a particular emphasis on those essential concepts that historians use to portray change over time: periods and events. I've shown how periods and events function to organize historical knowledge, and I've presented a formal model that can be implemented in networked knowledge organization systems.

More importantly, I've outlined a vision of how the various parties involved in the production and use of historical knowledge can interact around a standard model of periods and events. This is important because the success or failure of a standard intended to facilitate interoperability ultimately depends not upon how "correct" the standard is as a model, but upon the the processes that determine how the standard will evolve.

History-as-practice has no central locus of control. Individual researchers and organizations pursue their own lines of inquiry for their own practical and idealistic purposes. Controversy and conflict are the norm. As Stefano Mazzocchi observed, in such a decentralized environment different systems of knowledge organization collide and scrape against one another. Attempts to make these systems interoperable can only attempt to reduce the resulting friction by polishing the surfaces where they meet. A successful standard is not one that perfectly describes each surface so that they can seamlessly mesh with one another. Surfaces change constantly, and standards that aim for perfect fit are brittle. Successful standards instead describe surfaces adequately enough to accelerate the polishing process.[8]

I believe that the ideas I've presented here will prove useful to designers of systems for providing access to historical documentation and cultural heritage. I hope that they will inspire these designers to think beyond simply providing access and to consider how digital tools can help people understand historical context (and what historical context is). Finally, I hope that those who produce history-as-portrait will find these ideas useful when thinking about how to structure their work for a digital environment.

7. Mink, "The Autonomy of Historical Understanding," 47.

8. Stefano Mazzocchi, "Interoperability by Friction," 2008, `http://www.betaversion.org/~stefano/linotype/news/143/`.

7.2 Future Work

With this dissertation I have taken a step toward the larger vision described above. There is a great deal of work to be done. I anticipate two complementary branches of research. The first stems from the recognition that historical periods and events are but one example of temporal structure in systems of knowledge organization. The passing of time is highly consequential for the organization of knowledge, yet our present systems rarely enable insight into temporal structure. How might we empower system designers to plan for mutability, and enable users to better understand how concepts have changed over time? This would require data structures and system architectures that would easily change in response to reconceptualization. History and humanistic inquiry more generally have much to contribute to such a research program, both as a challenging domain of application, and as a source of sophisticated ideas about the nature of change and how we represent it.

The second branch involves looking more closely at narrative as a specific strategy or competency for comprehending change. There is a growing body of empirical research enumerating and describing the basic narratives that people draw upon to make sense of some flux of information. This research is being catalyzed by the proliferation of digital media proliferate and the improvement of tools for finding narrative patterns. I expect this work to inform the design of tools for exploring and comparing the narrative forms of explanation used in the humanities. Currently there are number of such projects for exploring different perspectives on quantitative data sets. Can we can build analogous tools for understanding humanities "data"?

Historians and other humanities scholars have long used computers to analyze documents and to synthesize new knowledge by connecting documents. In doing so they generate various models, write up the insights provoked by these models, and then throw the models away. This is due in part to a lack of infrastructure for preserving, describing, sharing and reusing such models. A key goal for both branches of research described above should be the development of work processes in which humanities scholars can preserve the models developed during the course of their research. This will require collaborative systems of humanist scholarship in which computational models have first-class status as scholarly products. Tools that help scholars discern patterns of similarity and difference among these models can then stimulate further scholarship. Practitioners and theorists of knowledge organization have much to contribute to this project, and they have much to gain from the challenges it poses.

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Appendices

Appendix A

LODE: An Ontology for Linking Open Descriptions of Events

This appendix presents version 2009-07-28 of the LODE ontology, the latest version of which is available at `http://linkedevents.org/ontology/`.

A.1 Introduction

This document describes an ontology for publishing descriptions of historical events as Linked Data, and for mapping between other event-related vocabularies and ontologies.

A.2 Namespace

The URI for this vocabulary is `http://linkedevents.org/ontology/`. When used in XML documents the suggested prefix is `lode`. Each class or property in the vocabulary has a URI constructed by appending a term name to the vocabulary URI. For example:

```
http://linkedevents.org/ontology/Event
http://linkedevents.org/ontology/atTime
```

A.3 Summary of Terms

This vocabulary defines one class and six properties:

Event	*class*	"Something that happened," as might be reported in a news article or explained by a historian.
atPlace	*property*	A named or relatively specified place that is where an event happened.
atTime	*property*	An abstract instant or interval of time that is when an event happened.
circa	*property*	An interval of time that can be precisely described using calendar dates and clock times.
inSpace	*property*	An abstract region of space (e.g. a geospatial point or region) that is where an event happened.
involved	*property*	A (physical, social, or mental) object involved in an event.
involvedAgent	*property*	An agent involved in an event.

A.4 Vocabulary Classes

A.4.1 Class: Event

Definition: "Something that happened," as might be reported in a news article or explained by a historian.

An event consists of some temporal and spatial boundaries subjectively imposed on the flux of reality or imagination, that we wish to treat as an entity for the purposes of making statements about it. In particular, we may wish to make statements that relate people, places, or things to an event.

Note that, unlike some defintions of "event," this definition does not specify that an event involves a change of state, nor does it attempt to distinguish events from processes or states.

URI: `http://linkedevents.org/ontology/Event`

Label: Event

Subclass of: dctype:Event and cidoc:E2.Temporal_Entity

Equivalent to: event:Event and dul:Event

A.5 Vocabulary Properties

A.5.1 Property: atPlace

Definition: The value of this property is a named or relatively specified place that is where an event happened.

This property relates an event to some meaningful place, which may have a name (e.g. "Paris") or may be defined relative to some other entity or entities (e.g. "the unincorporated area between Carson and Harbor Gateway"). An event may be related to more than one such place.

URI:	`http://linkedevents.org/ontology/atPlace`
Label:	at place
Domain:	Event
Range:	dul:Place
Subproperty of:	dul:hasLocation

A.5.2 Property: atTime

Definition: The value of this property is an abstract instant or interval of time that is when an event happened.

Equivalent definitions from the C4DM Event ontology: "Relates an event to a time object, classifying a time region (either instantaneous or having an extent)."

This property relates an event to some subjectively imposed temporal boundaries, i.e. a span of time. An event can be related to only one such span of time.

URI:	`http://linkedevents.org/ontology/atTime`
Label:	at time
Domain:	Event
Range:	owltime:TemporalEntity
Subproperty of:	dul:isObservableAt and cidoc:P4.has_time-span

A.5.3 Property: circa

Definition: The value of this property is an interval of time that can be precisely described using calendar dates and clock times.

This property relates a span of time that cannot be precisely located in a chronological series to another span of time that can be precisely located, thus asserting that the latter is an approximation of the former.

An temporal relation expressing nearness in time.

URI: `http://linkedevents.org/ontology/circa`

Label: circa

Domain: owltime:TemporalEntity

Range: owltime:DateTimeInterval

A.5.4 Property: inSpace

Definition: The value of this property is an abstract region of space (e.g. a geospatial point or region) that is where an event happened.

Note that a statement that relates an event to a region of space using this property only asserts that an event occurred somewhere within the region and does not assert that it occurred everywhere within the region.

This property relates an event to some subjectively imposed spatial boundaries, i.e. a region of space. An event can be related to only one such region of space.

URI: `http://linkedevents.org/ontology/inSpace`

Label: in space

Domain: Event

Range: geo:SpatialThing

Subproperty of: dul:hasRegion

A.5.5 Property: involved

Definition: The value of this property is a (physical, social, or mental) object involved in an event.

This property relates an event to any physical, social, or mental object or substance. It does not imply any causal relationship or influence or any other kind of explanatory relationship such as creation, destruction, etc.

URI: `http://linkedevents.org/ontology/involved`

Label: involved

Domain: Event

Range: dul:Object

A.5.6 Property: involvedAgent

Definition: The value of this property is an agent involved in an event.

This property relates an event to anything with agency, such as a (legal or natural) person, a group, an organization, a computational agent, etc. It does not imply any causal relationship, influence, intentionality, etc.

URI:	`http://linkedevents.org/ontology/involvedAgent`
Label:	involved agent
Domain:	Event
Range:	dul:Agent
Subproperty of:	involved

Appendix B

Example Event: Berkman Began Writing

Here I show how the event discussed in subsection 6.1.5 can represented using RDF. RDF data consists of sets of statements. Each statement consists of a subject, a predicate, and an object. Subjects and predicates are identified using URIs.[1] Objects may also be identifed using URIs, or they may be specified as literal values such as strings or numbers.

The RDF statements in the example below are written using Turtle syntax, a more readable alternative to XML.[2] Turtle allows statements that share the same subject to be grouped together. Each statement ends with a semicolon, and each set of statements that share a subject ends with a period. There are three sets of statements in this example, one for each of the three subjects: the event itself, the place "Emma Goldman's farm," and the span of time "Summer 1910."

URIs are abbreviated by defining prefixes for the vocabularies used. In addition to the LODE ontology presented in appendix A, this example uses a number of other standard vocabularies:

- OWL Time ontology (temporal interval classes and temporal relation predicates)
- GeoRelations ontology (spatial relation classes and predicates)
- RDF Schema (`label` predicates)
- Dublin Core (`description` and `source` predicates)
- XML Schema datatypes (calendar date types)[3]

The following directives reference the vocabularies used and define a prefix for each of them:

Vocabularies

```
@prefix lode: http://linkedevents.org/ontology/
@prefix time: http://www.w3.org/2006/time#
@prefix georelation: http://www.mindswap.org/2003/owl/geo/geoRelations.owl#
@prefix rdfs: http://www.w3.org/2000/01/rdf-schema#
@prefix dc: http://purl.org/dc/terms/
@prefix datatype: http://www.w3.org/2001/XMLSchema#
```

1. See section 5.1 for a brief explanation of URIs.

2. David Beckett and Tim Berners-Lee, *Turtle—Terse RDF Triple Language* (W3C, 2008), `http://www.w3.org/TeamSubmission/turtle/`.

3. Jerry R. Hobbs and Feng Pan, eds., *Time Ontology in OWL* (W3C, 2006); Femke Reitsma, "GeoRelations Ontology," 2003, `http://www.mindswap.org/2004/geo/geoOntologies.shtml`; Dan Brickley and R. V. Guha, eds., *RDF Vocabulary Description Language 1.0: RDF Schema* (W3C, 2004), `http://www.w3.org/TR/rdf-schema/`; DCMI Usage Board, *DCMI Metadata Terms* (Dublin Core Metadata Initiative, 2008); Paul V. Biron and Ashok Malhotra, eds., *XML Schema Part 2: Datatypes Second Edition* (W3C, 2004).

To improve readability, I also define prefixes for the various sources of the individual resources that serve as subjects and objects of the statements. In this example I reference resources from DBpedia (a database of information extracted from Wikipedia) and GeoNames (a place name gazetteer).[4] The resources I define here are given the prefix `emma`.

Resources

```
@prefix dbpedia: http://dbpedia.org/resource/
@prefix geonames: http://sws.geonames.org/
@prefix emma: http://ecai.org/emma/chronology/
```

The first set of statements describe the event:

The event

```
1  emma:event/berkman_began_writing
2      a lode:Event ;
3      dc:description """Alexander Berkman began writing Prison Memoirs of an
4                        Anarchist at Emma Goldman's farm in Ossining, NY."""@en ;
5      dc:source <http://sunsite.berkeley.edu/Goldman/> ;
6      lode:involvedAgent dbpedia:Alexander_Berkman ;
7      lode:atTime [
8          rdfs:label "Sometime during Summer, 1910"@en ;
9          time:intervalDuring emma:time/summer_1910 ;
10     ] ;
11     lode:atPlace emma:place/emmas_farm .
```

Line 1 declares the subject for this set of statements. On line 2, I declare that the subject is an instance of the `Event` class from the LODE ontology. Lines 3 and 4 give the event a brief English description. On line 5 I give the source of the information about this event. Here I have simply given the URL of the web page for the Emma Goldman Papers Project. Instead of doing this I could also have linked to a bibliographic record.

Line 6 states that this event involved Alexander Berkman. Because Alexander Berkman is referenced using a DBpedia URI, the event is linked to additional information about Berkman, including his birth name, where he was born and died, and so on.[5]

Lines 7 through 10 state that the event took place sometime during the summer of 1910. The span of time during which the event occurred is defined as an "anonymous" resource, meaning it does not have its own URI. The span of time is given a label, and is asserted to be during (contained by) another span of time, the summer of 1910. The summer of 1910 is the subject of the last set of statements in this example.

Line 11 states that this event took place at Emma Goldman's farm, the subject of the next set of statements:

4. Soren Auer et al., "DBpedia: A Nucleus for a Web of Open Data," in *The Semantic Web*, ed. Karl Aberer et al., vol. 4825, Lecture Notes in Computer Science (Berlin: Springer, 2007), 722–735, doi:10.1007/978-3-540-76298-0_52, http://www.springerlink.com/content/rm32474088w54378; GeoNames, http://www.geonames.org/.

5. *DBpedia*, s.v. "About: Alexander Berkman," http://dbpedia.org/page/Alexander_Berkman (accessed July 30, 2010).

Emma Goldman's farm

```
emma:place/emmas_farm
    rdfs:label "Emma Goldman's farm"@em ;
    emma:owner dbpedia:Emma_Goldman ;
    georelation:hasSpatialRelation [
        # geonames:5130059/ is the town of Ossining, NY.
        georelation:within geonames:5130059/
    ] .
```

Here I simply state that Emma Goldman's farm is owned by Emma Goldman, and is within the town of Ossining, New York.[6] Additional informaton about Emma Goldman and Ossining can be obtained by following the links to DBpedia and GeoNames, respectively.[7]

The last set of statements define the summer of 1910 to have begun on June 1, 1910 and ended on August 31, 1910:

Summer 1910

```
emma:time/1910/summer
    rdfs:label "Summer, 1910"@en ;
    time:intervalStartedBy [
        rdfs:label "June 1, 1910"@en ;
        time:hasDateTimeDescription [
            time:unitType time:unitDay ;
            time:day "---01"^^datatype:gDay ;
            time:month "--06"^^datatype:gMonth ;
            time:year "1910"^^datatype:gYear ;
        ]
    ] ;
    time:intervalFinishedBy [
        rdfs:label "August 31, 1910"@en ;
        time:hasDateTimeDescription [
            time:unitType time:unitDay ;
            time:day "---31"^^datatype:gDay ;
            time:month "--08"^^datatype:gMonth ;
            time:year "1910"^^datatype:gYear ;
        ]
    ] .
```

6. Rather than further complicate this example by importing another vocabulary, I have simply defined my own `owner` predicate here to express the relationship between the farm and Goldman. A more complex model might assert when she owned the farm.

7. *DBpedia*, s.v. "About: Emma Goldman," `http://dbpedia.org/page/Emma_Goldman` (accessed July 30, 2010); *GeoNames*, s.v. "Town of Ossining, United States," `http://www.geonames.org/5130059/town-of-ossining.html` (accessed July 30, 2010).