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# Mapping Networks in Service of Intellectual History

HOW TOPIC MODELS AND CO-CITATION NETWORKS  
DESCRIBE A PARADIGM SHIFT IN A HUMANITIES DISCIPLINE

**[1]: Title Slide**

On the behalf of Jonathan Goodwin and myself, I want to thank the organizers of the Conference for having us here.

This morning we have decided to reverse the usual order of events for the sake of promoting a different kind of conversation. That is, even in the nascent arena of the digital humanities, it is already conventional to discuss, first, your technologies and methodologies, and then to follow, second, with a consideration of how the application of those technologies extend or revise our understanding of a particular humanistic topic — or, in some instances, how it creates new topics.

This is good. I'm a folklorist. I like convention. But in this moment, we thought it would be interesting to outline for you the nature of our initial inquiry, merely allude, for the moment, to the technologies involved, discuss the interesting things that came up, and then spend the second half of our time with you with our sleeves rolled up and the code coming out.

What this means is that I am going to go first, warm you a bit to our task, and then Jonathan is going to walk you through the magic spells he casts when he works in R and, now, in D3.

**[2]: DOI & Email**

For those interested in a more complete description of our initial project, we published a report in the Journal of American Folklore: if you have access to JSTOR, then please use this link, as the American Folklore Society, like other publishers, is remunerated for each download. If you don't have access, please drop me a note and I'll get you a pre-print PDF.

## **Disciplinary History**

Thanks to the information age and our own increasing sophistication, we find ourselves not only surrounded by interesting tools that make some older questions now answerable but also some new questions possible. Some of those new questions are driven by parallel work in network and information studies, but some of those questions are uniquely our own as humanists in general and as historians, literary scholars, and, in my case, folklorists in particular — and please note that I am not even touching upon that I am not even including the entirely new platforms for

knowledge creation and distribution that has already begun to lead to the erosion between categories of activity like faculty and staff.

### **[3]: Zones of Discourse**

Folklorists have never, historically, enjoyed having a solid institutional base for their enterprise, and so we have always had to rely on having an acute sense of how our work fits in with the departments, and colleagues, within which we profess our own discipline. Disciplinary history, then, has always been a paramount concern, which has manifested itself in a regular stream of articles about what programs are where, what folkloristic ideas or topics are being included in other discourses, and how a current intellectual landscape might afford an opportunity for discursive, and thus professional, engagement.

That is, to some degree, folklore studies has always already been networking.

### **[4]: Domain Map**

With that as a backdrop, Jonathan and I found ourselves with the opportunity two years ago to collaborate in an exploration of a topic we found mutually interesting: what is the nature, the shape and size, of a paradigm shift in the humanities, something about which Kuhn speculated. What made our investigation possible was our ready access to a representative portion of the historical record of a discipline whose intellectual history with which at least one of us was reasonably familiar.

The discipline in question was folklore studies, and the record was the scholarly articles of three of its most prominent journals: the *Journal of American Folklore*, the *Journal of Folklore Research*, and *Western Folklore*. The first, *JAF*, began publication in 1888, *Western* in 1947, and *JFR* in 1964. Combined, the journals spanned 125 years of folklore scholarship and published close to seven thousand scholarly articles. (We did not include book reviews, notes, or other forms of communication in our study.)

We began with the knowledge that the discipline had undergone a paradigm shift of some significance and with the assumption that that shift would be reflected in its scholarly discourse. We further assumed that a topic model of the domain would reveal this shift, but we had no idea how that would occur, what it would look like, and what it might mean for our understanding of the discipline itself or disciplinary and/or intellectual history.

### **[5]: 50 topics**

Using the tools that were familiar to us, especially to Jonathan, we eventually decided that 50 topics, as delivered by Mallet (more on this later) gave us the necessary resolution for inspecting

the domain's output. The graphs that you see now were smoothed with five year averages, with each representing the proportionate significance of a topic within a year.

#### [6]: 50 Topics with Highlights

A close look at the 50 graphs revealed that roughly half the topics are fairly constant over the time period in question and the other half are active, in one of five larger patterns.

There were four topics whose trend lines revealed an early interest that *peaked early* in the history of American folklore studies and then declined as quickly as it arose. (It should be noted that at this point, all of our data is coming only from the *Journal of American Folklore*, so anything happening outside the journal is not reflected in any of these graphs.)

Curious to know more about this trend, and the others that follow, we pulled up a list of the articles most associated with this particular keyword cluster and discovered that these topics included treatments of Latin American folklore, including New Mexican traditions (47, 13); Francophone folklore, largely Canadian with some later work in Louisiana (33); and an interesting admixture of tale collections and considerations that span the old and new world (10). Interestingly, the peaks here are contemporaneous, with the rise and fall coming during the interwar years of the twentieth century, circa 1917 to 1942.

The next trend, in terms of an historical timeline, were those that displayed a great deal of activity in the first half of the century. (Again, it should be noted that neither *Western Folklore* nor the *Journal of Folklore Research* are being published during this period, this trend, and so this trend like the one preceding it is a product of JAF's own history.) Even the briefest glances through the contents of these 7 topics reveals that these topics represent the great collection projects of the *Journal* as sketched out by the Society's founders, William Wells Newell and Franz Boas among others.

Peaking just after these topics, and in the middle of the period being mapped here, are two topics, *year western state* (00) and *california place mountain* (30) that can at least be partially understood as artifacts of the emergence of a major new journal in the field, *Western Folklore*. We labelled these two keyword clusters simply *mid-century peak*.

#### [7]: Outliers

Of the topics showing significant dynamism during the study period, there are three whose behavior could not be readily captured in a short phrase. They are: *good person make*, the lead topic with 425 articles in our corpus; *time told story* in 317 articles, and *form number part* in 299.

A complete list of the word clusters associated with these topics does nothing to reveal what they are. Just the opposite, they looked frighteningly similar to our eyes. But a look at the texts

associated with each topic reveals that *good person make* addresses folk belief; that *time told story* is an admixture of jokes, legends, tall tales, and occupational folklore from contemporaneous historical settings; and that *form number part* encompasses collections of regional folklore, including place names, considerations of diffusion, some examinations of material culture forms, and treatments of myth.

#### [8]: Topic 26 “cultural performance discourse”

Finally, if we return to the intellectual history question with which we began — can we discern patterns and plots within a corpus of scholarly publications for a particular domain using nothing more than an algorithm? — we felt sure, having glimpsed the kinds of trends already described that topic modeling would highlight any increase in folkloristic discourse having to do with the the performative shift in the field. The five-year means of the *cultural performance discourse* topic’s occurrence from 1888-2012 does not disappoint: the rise in the 1970s of those keywords frequency — in relationship to each other it should be noted — could not be more clear:

It’s clearly the case that in terms of terminology, the keywords associated with performance studies literally appear out of nowhere and their usage increases at first slowly and then quite quickly. (If there is an argument to be made for the application of paradigm shifts in the humanities, then surely it can be made using this graph, and the data lying behind it, alone.)

#### []: 8 Performance Topics - List

But there are other keyword clusters with similar rises in occurrence in the last quarter century or so: the first topic in the list above, topic 21 (does make world), confused us momentarily, but then, following our process of beginning at a distance and then zooming in to understand the nature of a phenomenon, we checked the texts associated with it and recognized that the abstraction more familiar to folklorists would be psychological approaches to folklore. Drawn into the graphs like this, we felt obliged to explore the peak and decline of interest in psychological approaches, only to realize that our initial topic of interest performance revealed a similar, if not decline, then at least plateau.

#### Topic 21 & 26 & 9 layered

Scanning all eight graphs we had coded for last quarter activity we saw similar declines and plateaus in all but one topic, topic 9 (cultural political national). On the one hand, this collection of trends suggests that perhaps the psychological and the performative either found some resolution in the political or that focus on the political simply displaced previous concerns.