

# Multi-level structure of the First Tuesday communities after the 2000 dot-com crash: A social network analysis of economic actors based on web archives

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**Abstract:** The First Tuesday initiative began in the UK in 1998. This series of monthly meetings between IT entrepreneurs and investors played a key role in the development of the new digital economy. In this chapter, we use First Tuesday meetings as empirical proxies to analyze the social system of the economic actors who survived the 2000 dot-com crash. To this end, we delve into the raw web archives of the [firsttuesday.com](http://firsttuesday.com) website in order to reconstruct the social network of First Tuesday attendees. Our analysis reveals that the First Tuesday community was, on one hand, regionally decentralized (both online and offline), but on the other hand, organized in two transnational groups of actors: the financial block and the technological block.

**Keywords:** first tuesday, financial web, social network analysis, web cernes, stochastic block models.

## 1. Introduction

The year 1995 marked a turning point in the history of the web. The initial public offering of Netscape in August 1995 heralded the beginning of the 2000 stock market bubble also known as the dot-com bubble. This event reflected the expansion of the New Economy: the idea that the internet and the web could spawn new types of business markets and achieve unprecedented returns on investment (Flichy 2001). The web thus quickly became a source of financial euphoria. The combination of high growth, low inflation, and high employment transformed investments into a gold rush. Venture capital became readily available and valuations in startups related to information and communication technologies (ICT) experienced exponential growth (Ofek and Richardson 2003). Indeed, in the late 90s, starting an online business required minimal capital, leading to a proliferation of startups across the USA and Canada before extending into Europe (Abélès 2002). Stock options further inflated the capitalization of young companies and venture capitalists liberally invested in pursuit of short-term profits. The tech market eventually reached a point of no return.

The dot-com bubble burst in March 2000, dragging the global valuation of tech markets down with it (Griffin, et al. 2011). It would take nearly ten years—and the success of Facebook—for confidence in the digital market to recover. In the wake of this crash, the digital economy had to reinvent itself by pivoting towards new business models and new areas of investment. The period from 2000 to 2004 can thus be considered as a

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pivotal moment in web history (Lobbé 2018), marking the end of the first golden age of e-commerce and the dawn of the mobile web era. In this chapter, we aim to study this historical moment.

### 1.1 What historical traces remain from the post dot-com crash period?

From a historiographic perspective, the growth or decline of financial markets are typically analyzed through aggregated economic indicators such as business turnovers, recruitment dynamics, and the like (Luo and Mann 2011; Mann and Luo 2010). However, focusing solely on such indicators overlooks the underlying social interactions. Indeed, tech or financial markets are complex social worlds (Becker 2008), comprising various agents interacting with one another, including entrepreneurs, investors, and business lawyers. But given the intrinsic opacity of modern finance, accessing public historical records of these social interactions is challenging. Who was financing whom? Who was meeting with whom and under what circumstances? Who sponsored these meetings? And so forth.

Nonetheless, it was precisely as a community that the tech market redefined itself between 2000 and 2004. Therefore, the question arises: is there a way to reconstruct this social network? How can contemporary historians investigate the social history of economic actors who weathered the 2000 dot-com crash?

### 1.2 The First Tuesday meetings

Our research has led us to uncover the significance of the First Tuesday meetings. Emerging in the late 1990s, these offline social events played a key role in fostering communities within the burgeoning digital economy. Created in 1998 in Great Britain, First Tuesday events were monthly gatherings held in major technology hubs across the Western world (Evans 2002). On the first Tuesday evening of each month, these gatherings brought together hundreds of investors and entrepreneurs in prestigious venues such as luxury hotels, corporate headquarters, and government ministries. Renowned startup founders delivered keynote lectures, while multinational tech and finance companies sponsored the events. However, beyond the formal presentations, attending a First Tuesday event allowed entrepreneurs (identified by yellow badges) to connect with investors (identified by green badges), present their business plans, and potentially secure funding. For a few hours, these events transformed into giant ephemeral offline social networks. In the early 2000s, the concept of First Tuesday spread throughout North America and Europe through the establishment of regional and local chapters. First Tuesday events peaked in 2001–2002, gradually declining after 2003 and becoming more exclusive as born-digital professional networking platforms such as LinkedIn emerged and eventually replaced the offline First Tuesday meetings.

### 1.3 From archived meeting descriptions to offline social interactions

In this chapter, we propose to use the First Tuesday meetings as empirical proxies to analyze the social network of economic actors who weathered the 2000 dot-com crash. These meetings served as spaces for socialization where new relationships were created and forged among participants. Each meeting can thus be modeled as a network of encounters between economic actors: actor  $A$  met actor  $B$  during the meeting  $M_i$  such as  $(A \leftrightarrow B)_{M_i}$ . By aggregating the offline networks generated from each meeting, we aim to approximate the social structure of the 2000–2004 tech market.

However, as far as we know, there are no existing records of these offline meetings apart from the pre-meeting descriptions that were published on a dedicated website called [firsttuesday.com](http://firsttuesday.com). Unfortunately, [firsttuesday.com](http://firsttuesday.com) disappeared from the web more than a decade ago, around 2010.

But nothing is truly lost on the web. Indeed, the automated collections carried out by the Internet Archive initiative (Kahle 1997) preserve the memory of past websites and substantial portions of [firsttuesday.com](http://firsttuesday.com) were archived between 1999 and 2010. Therefore, in this chapter, we will delve into information published twenty years ago on [firsttuesday.com](http://firsttuesday.com) by using raw web archive data. How can we transform raw snapshots of meeting descriptions into a viable archive of offline social interactions?

This chapter represents a methodological contribution to the field of digital humanities and will be valuable to scholars interested in extracting reliable historical sources from raw web archive materials (see section 2).

### 1.4 Previous work and research questions

This chapter builds upon previous web archive research conducted on the digital strategy behind the organization of the First Tuesday meetings, as documented in Lobbé 2023:

- The organization of the meetings was decentralized, with the First Tuesday initiative divided into regional (state-level) or local (city-level) chapters. Each chapter had its own dedicated local/regional website to support a common offline/online strategy.
- The main website, [firsttuesday.com](http://firsttuesday.com), served as a hub for the entire First Tuesday initiative. It advertised upcoming events from local chapters, reported on past meetings, and hosted a discussion forum.
- The focus of the meetings evolved over time, covering three main topics: e-commerce and e-business in 1999–2000, mobile web and telecoms in 2000–2002, and biotechnology after 2003.

- Economic actors who spoke during meetings were often influenced by the myth of the self-made man (Galluzzo 2023) and presented a ‘rise and fall and rise again’ narrative to motivate their audience following the dot-com crash.

Building on this foundation, our current chapter will focus on the analysis of offline interactions recorded in the *firsttuesday.com* web archives. How can we investigate offline interactions that are twenty years old starting from online archived traces? To what extent can we reconstruct the social system of the tech market after the 2000 dot-com crash? What was the structure of this system? Was it decentralized and organized into chapter-like communities? Were there higher levels of organization? Were there global actors? Can we say that the post dot-com crash tech market was made up of a unique community or scattered clusters of actors? etc.

### 1.5 Static or dynamic social network analysis?

To address these research questions, we will use a social network analysis approach called stochastic block models (SBM). The benefits of using SBM will be addressed in section 3. However, at this juncture, it is important to clarify that this method enables the study of the structure of a given social system from both static and dynamic perspectives. Unfortunately, the temporal quality of the *firsttuesday.com* archives fluctuates significantly, limiting our ability to conduct a consistent diachronic analysis of the period 2000–2004. Therefore, we have decided to narrow the scope of our study to the single year 2001 (from January 2001 to January 2002). This decision is based on 2001 being the busiest year in terms of meeting frequency and marking the renewal of the digital economy, as explained in subsection 1.4. Furthermore, the temporal coverage of 2001 is the highest in the entire raw corpus of *firsttuesday.com* web archives. Henceforth, we will consider the year 2001 as a static moment with no temporal evolution. In section 5, we will explore possibilities to extend our analysis towards a more dynamic approach.

## 2. Reconstructing social interactions from raw web archives

Our initial objective is to build a reliable collection of social interactions extracted from the raw web archives of *firsttuesday.com*. We define two economic actors as being in interaction if they participated together in at least one First Tuesday meeting. The resulting social network will be built upon this premise. To visualize the evolution of the *firsttuesday.com* website and filter its most relevant archived pages, we will employ the web cernes approach (Lobbé 2023). Additionally, we will use the web fragments framework (Lobbé 2018) to extract the actors from the meeting descriptions. Our data mining protocol comprises five steps:

- Visualize the temporal evolution of *firsttuesday.com*.

- Identify the archived pages relevant to our study.
- Extract the meeting descriptions from the filtered archives.
- Extract economic actors from the meeting descriptions.
- Reconstruct a network of interactions between economic actors.

Initially, we extract all archived pages related to the firsttuesday.com website from the Internet Archive database using the Wayback CDX Server API. We harvest a collection of 8,280 snapshots, which are then reduced to 3,670 deduplicated snapshots, representing 1,507 unique archived pages. Next, we visualize the temporal evolution of the firsttuesday.com structure between 1999 and 2010 using web cernes<sup>1</sup>. Figure 1<sup>2</sup> illustrates the evolution of firsttuesday.com over the years into sub-parts and sub-sections. Dark lines represent single pages that remained consistent over time, while pages belonging to the same section are displayed nearby. Upon examining Figure 1, we observe that all meeting descriptions are housed within three dedicated sections: the blue, green, and orange parts. These sub-sections contain 593 distinct meeting descriptions, each following a similar pattern as illustrated in Figure 2<sup>3</sup>:

- A title describing the main subject of the meeting
- A date (day, month, year) indicating when the meeting is scheduled to occur
- A location (building, city) indicating where the meeting will take place
- An extended abstract detailing the subject of the meeting

Among other information, the abstracts contain the names of the speakers and sponsors invited to participate in the meetings. These speakers and sponsors typically represented companies or institutions. In the subsequent analysis, we aggregate speakers and sponsors under the umbrella of their respective companies or institutions, considering them as key players within the First Tuesday social network. It is important to note that these sets of actors are merely subsets of a larger list. Twenty years ago, attendance at meetings was not necessarily reported on firsttuesday.com, and, regrettably, not all events published on the platform have been archived. Therefore, this compilation of actors serves as a reconstructed approximation of historical reality. Nevertheless, these actors likely held

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<sup>1</sup> An interactive version of the evolving structure of firsttuesday.com can be explored at [http://maps.gargantext.org/unpublished/maps/phylo/web\\_archives/firsttuesday.html](http://maps.gargantext.org/unpublished/maps/phylo/web_archives/firsttuesday.html)

<sup>2</sup> Figure 1: The temporal evolution of the firsttuesday.com website reconstructed from a collection of web archives by using the web cernes approach (Lobbé 2023). The website grows from the center of the figure in 1999, then splits into sub-sections. It was gradually abandoned after 2004 before being erased in 2010. The blue, green, and orange sections represent the sections where the First Tuesday meetings were announced (see: <https://doi.org/10.5281/zenodo.11066424>).

<sup>3</sup> Figure 2: An example of a First Tuesday meeting held in Riga in December 2001 (see: <https://doi.org/10.5281/zenodo.11066438>).

significant influence, as we can assume their positions within the social fabric of the First Tuesday initiative facilitated their invitation as speakers.

Next, as explained in subsection 1.5, we have chosen to focus our analysis solely on meetings occurring between January 2001 and January 2002, totaling 213 meetings. Subsequently, we delve into the textual content of each selected meeting, using the web fragments framework to extract dates, locations, and actors, resulting in the identification of 438 unique economic actors. These actors were manually categorized into 8 types: tech and IT companies (43%); investment, finance, and law firms (15%); press (11%); consulting firms (10%); non-tech trade companies (8%); public and governmental entities (6%); research and educational institutions (4%); and health-related companies (1%). The resulting social interaction network encompasses 438 unique actors and 3,364 unique interactions. The interactions are weighted by counting the meetings in which each pair of actors jointly participated. We denote this network  $G$ .

### 3. Detecting multi-level social blocks of economic actors

Our chapter now moves into computational social sciences to analyze the social network  $G$ . Network science has been instrumental for historians in reconstructing evolving networks of social groups based on time-stamped interactions (Gardin and Garelli 1961). Within these networks, communities, clusters, or blocks often emerge, representing groupings of entities sharing common interaction patterns. Detecting such local structures within larger networks can offer precise insights into the organization of an economy by illuminating real and de facto historical associations among economic actors.

The field of community detection methods can be broadly categorized into two families: descriptive methods and inferential methods (Peixoto 2021). Descriptive methods rely on context-dependent notions, such as modularity (Blondel et al. 2008), to define a reasonable division of the network into groups. While intuitive, these approaches often yield outputs open to uncertain interpretations and lack explanation. In contrast, inferential methods aim to identify latent partitions of nodes (called blocks) that are more likely to explain the network under study. These Bayesian approaches, particularly stochastic block models techniques (SBM) (Karrer and Newman 2011), originating from the field of statistical sociology in the 1970s (Lorrain and White 1971), focus on explaining structures within observed networks, making them well suited for interpreting empirical observations. SBM not only helps to understand the role of each block within the network and the mechanisms behind their genesis, but also reveals multi-level organizations in the form of meta-blocks of blocks.

In this chapter, we find the SBM approach highly relevant for testing both the decentralized and multi-level hypotheses formulated in subsection 1.4. We thus use the ‘Graph Tool’ Python library (Peixoto 2014) to detect

possible multi-level blocks within the network G. The process reveals a first level of organization consisting of 29 blocks and a second level of organization comprising 2 meta-blocks. Figure 3 illustrates the resulting network of interactions, with economic actors represented by dots. Actor types are depicted by a dedicated color: orange for tech and IT companies; blue for investment, finance, and law firms; purple for press; green for consulting firms; brown for non-tech trade companies; dark purple for public and governmental entities; dark blue for research and educational institutions; and dark green for health-related companies.

#### 4. Results

Figure 3 provides insights into the structure of economic actors into two distinct interlocking levels of organization.

The first level is depicted by areas of strong interactions surrounded by fine dotted lines. Our initial observation is that these zones are all associated with specific geographical areas, such as major metropolises in the United States or capital cities in Europe. These areas predominantly involve local actors who tend to interact with their own communities. This local organization aligns closely with the digital strategy outlined in our previous contribution (Lobbé 2023), showing a decentralized system within the social organization of the tech market after the 2000 dot-com crash, operating both online and offline.

A second notable observation pertains to the diversity among actors within the first-level blocks. Contrary to simplistic assumptions suggesting that these groups consist solely of entrepreneurs and investors, our field data demonstrate a much more nuanced composition of these blocks. Each first-level block comprises at least three different types of actors, with an average of four types per block across the entire network. While entrepreneurs and investors play central roles, they collaborate with other actors, including those from the press and media, the public sector, and the world of education and universities, to fuel and promote local tech markets.

A recent study by Chiapello and Roth (2024) revealed similar complex social interactions at a local level while analyzing the evolution of the Impact Investing community using Twitter data. The authors draw parallels between the local structures observed in the Impact Investing community and the concept of social worlds as defined by H.S. Becker in 1982 for arts worlds (Becker 2008). According to Becker, a social world represents a collective process involving various actors whose activities are necessary for the production of works within that social structure.

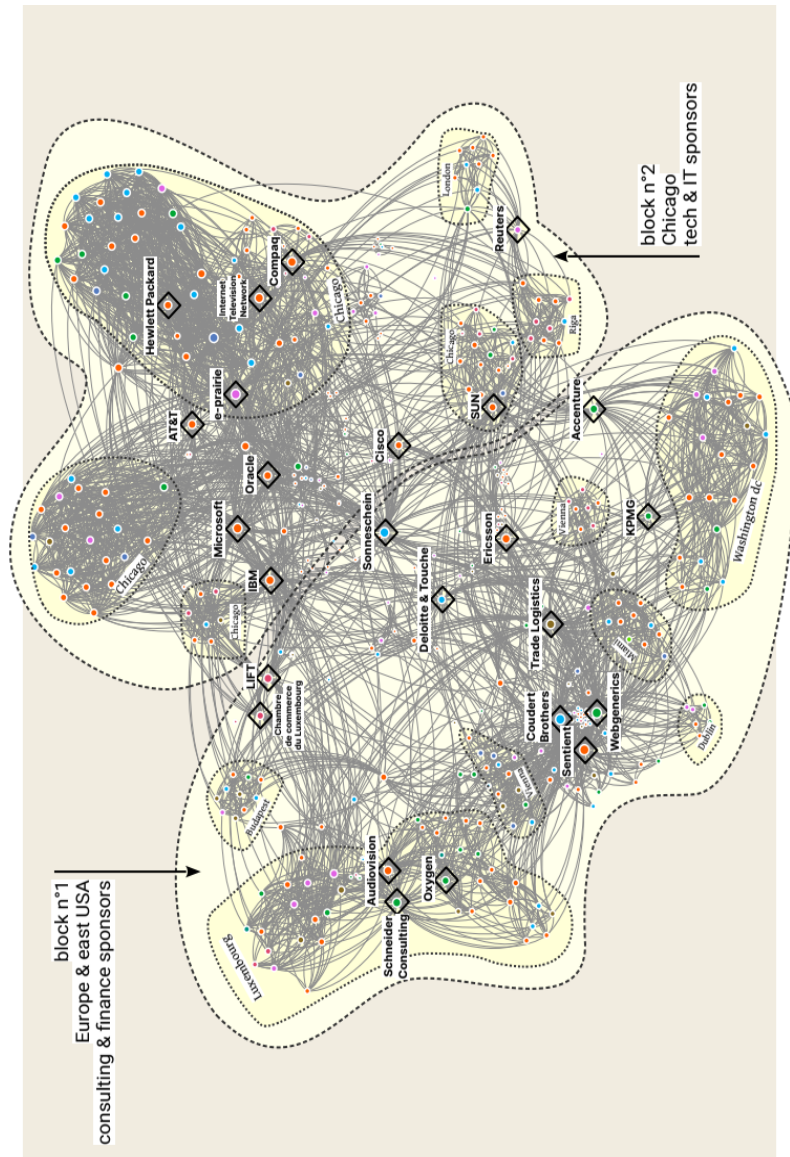


Figure 3. Network of social interactions between economic actors extracted from the descriptions of 213 First Tuesday meetings

Building upon Chiapello and Roth's insights, we view the communities participating in the First Tuesday meetings as akin to Becker's social worlds. In the social worlds of the post dot-com crash era, the circulation of business ideas, subjects, narratives, and myths was not centralized around



entrepreneurs and investors. The press and media actors also played a vital role in promoting topics and disseminating information across local sub-communities. Universities and scientific societies facilitated connections between academia and startups, often hosting meetings in prestigious institutions like MIT or Harvard. Public and state actors from local governments like the city of Riga to the EU commission promoted the local establishment of companies and bridged the gap between the financial and tech sectors. The ‘bridge role’ played by entities like the Chamber of Commerce of Luxembourg and the EU agency LIFT (Linking, Innovation, Finance, and Technology) in Figure 3 thus speaks for itself.

Our analysis also considers the highest level of organization depicted in Figure 3. This global level is represented by broad dotted lines, revealing that first-level blocks were contained within two larger meta-blocks structuring the First Tuesday initiative at an international level. Although we cannot definitively link these two meta-blocks to specific geographical areas, a rough approximation suggests that meta-block no. 1 centers around Europe and the east coast of the United States, while meta-block no. 2 centers around Chicago, a prominent technology hub in the USA before the rise of Silicon Valley in 2006 (Abélès 2002).

If geography is not the primary factor, then the nature of actors/sponsors connecting each local community may help explain the existence of the two meta-blocks. In Figure 3, central sponsor-actors are symbolized by diamonds, identified using the betweenness centrality measure (Brandes 2001). Block no. 1 includes sponsors from finance, law, and consultancy (e.g., Deloitte & Touche, Accenture, Coudert Brothers), while block no. 2 comprises sponsors from new digital technologies (e.g., Microsoft, IBM, Oracle). This higher level of organization reveals a dichotomy between finance and digital technologies, between entrepreneurs and investors, that we expected to observe at the local level. Based on this criterion, global meta-blocks delineated local geographical boundaries; for instance, the Washington DC community was linked to finance, while Chicago was more connected to digital technologies. Nevertheless, actors outside these realms, such as the Chamber of Commerce of Luxembourg and the EU Agency LIFT, acted as bridges between tech and finance sponsors.

## 5. Conclusion

This chapter has delved into the study of the social organization of economic actors who weathered the 2000 dot-com crash. Our approach followed two distinct avenues of inquiry. Firstly, within the realm of digital humanities, we curated a collection of offline social interactions extracted from the raw web archives of firsttuesday.com, enabling the reconstruction of a global social network based on descriptions of First Tuesday meetings dating back two decades. Secondly, drawing upon computational social

science, we used the stochastic block models approach to analyze the structure of this global social network. Through our analysis, we have validated the hypothesis of a tech market characterized by both online and offline decentralization. Additionally, we have studied the complexity and heterogeneity of local sub-communities, uncovering the central role played by major sponsors from finance and digital technologies in shaping higher transnational organizational levels.

However, due to the temporal limitations of the [firsttuesday.com](http://firsttuesday.com) web archives, our analysis was restricted to a static review of the year 2001. To conduct a comprehensive dynamic analysis of the social history of the First Tuesday initiative, two avenues for improvement are proposed:

- Delve into the web archives of regional First Tuesday websites to supplement the list of meetings documented on the main [firsttuesday.com](http://firsttuesday.com) website.
- Use the list of economic actors compiled in section 2 as a foundation for conducting interviews and accessing personal archives of actors who participated in First Tuesday meetings.

With the decentralized nature of the First Tuesday initiative established, future research should focus on understanding the unique attributes of each local chapter and community. For instance, our analysis in section 4 highlighted the distinctive role played by actors from Luxembourg, positioned at the border between meta-blocks. They seem to have acted as a permeable and global interface between the worlds of finance and digital technologies. To what extent can we refine this observation by exploring the web archives of [firsttuesday.lu](http://firsttuesday.lu)?

Lastly, the question of the decline of the First Tuesday communities warrants exploration. To which other platforms did these economic actors gravitate once the influence of First Tuesday meetings waned? Can we trace their “digital migrations” (Lobbé 2018) through web archives to platforms like LinkedIn or [xing.com](http://xing.com)?

## References

- Abélès, M. 2002. *Nouveaux riches (les) : Un ethnologue dans la silicon valley*. Odile Jacob.
- Becker, H. S. 2008. *Art worlds: updated and expanded*. University of California Press.
- Blondel, V. D., Guillaume, J.-L., Lambiotte, R., and Lefebvre, E. 2008. “Fast unfolding of communities in large networks.” *Journal of statistical mechanics: theory and experiment* 10, <https://iopscience.iop.org/article/10.1088/1742-5468/2008/10/P10008>.
- Brandes, U. 2001. “A faster algorithm for betweenness centrality.” *Journal of mathematical sociology* 25 (2), 163–177. <https://doi.org/10.1080/0022250X.2001.9990249>
- Chiapello, E., and Roth, C. 2025. “Socio genesis of the impact investing world in France.” In *Varieties of impact investing: Creating and translating a label in local contexts*.
- Evans, R. 2002. “E-commerce, competitiveness and local and regional governance in greater Manchester and Merseyside: A preliminary assessment.” *Urban Studies* 39 (5–6): 947–975. <https://doi.org/10.1080/00420980220128390>
- Flichy, P. 2001. “Genèse du discours sur la nouvelle économie aux Etats-Unis.” *Revue économique* 52 (7): 379–399. <https://doi.org/10.3917/reco.527.0379>
- Galluzzo, Anthony. 2023. *Le Mythe de l'entrepreneur: Défaire l'imaginaire de La Silicon Valley*. Paris: Zones.
- Gardin, J.-C., and Garelli, P. 1961. “Étude par ordinateurs des établissements assyriens cappadoce.” *Annales*, 16 (5): 837–876. [https://www.persee.fr/doc/ahess\\_0395-2649\\_1961\\_num\\_16\\_5\\_420758](https://www.persee.fr/doc/ahess_0395-2649_1961_num_16_5_420758)
- Griffin, J. M., Harris, J. H., Shu, T., and Topaloglu, S. 2011. “Who drove and burst the tech bubble?” *The Journal of Finance* 66 (4):1251–1290. <https://ssrn.com/abstract=459803>
- Kahle, B. 1997. “Preserving the internet.” *Scientific American* 276 (3): 82–83. <https://www.scientificamerican.com/article/preserving-the-internet/>
- Karrer, B., and Newman, M. E. 2011. “Stochastic blockmodels and community structure in networks.” *Physical review E*, 83 (1), <https://doi.org/10.1103/PhysRevE.83.016107>
- Lobbé, Q. 2018. “Where the dead blogs are.” In *International Conference on Asian Digital Libraries*, 112–123.
- Lobbé, Quentin. 2023. “Continuity and Discontinuity in Web Archives: A Multi-Level Reconstruction of the Firsttuesday Community through Persistences, Continuity Spaces and Web Cernes.” *Internet Histories* 7 (4): 354–85. <https://doi.org/10.1080/24701475.2023.2254050>.
- Lorrain, François, and Harrison C. White. 1971. “Structural Equivalence of Individuals in Social Networks.” *The Journal of Mathematical Sociology* 1 (1): 49–80. <https://doi.org/10.1080/0022250X.1971.9989788>.

- Luo, T., and Mann, A. 2011. "Survival and growth of silicon valley high-tech businesses born in 2000." *Monthly Lab. Rev.*, 134, 16.  
<https://www.bls.gov/opub/mlr/2011/09/art2full.pdf>
- Mann, A., and Luo, T. 2010. "Crash and reboot: Silicon valley high-tech employment and wages, 2000–08." *Monthly Lab. Rev.*, 133, 59.  
<https://www.bls.gov/opub/mlr/2010/01/art3full.pdf>
- Ofek, E., and Richardson, M. 2003. "Dotcom mania: The rise and fall of internet stock prices." *The Journal of Finance* 58 (3): 1113–1137. <https://doi.org/10.1111/1540-6261.00560>
- Peixoto, T. P. 2014. "The graph-tool python library." figshare. Retrieved 2014–09–10, <https://doi.org/10.6084/m9.figshare.1164194.v14>
- Peixoto, T. P. 2021. "Descriptive vs. inferential community detection: pitfalls, myths and half-truths." *arXiv preprint* <https://doi.org/10.48550/arXiv.2112.00183>