

# Amiability and the Web

## Lessons from Red Vienna and the Origin of Computing

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### Abstract

From 1919 to 1934, the socialist city government of Vienna fostered a remarkable increase in art, public architecture, and scholarship despite desperate economic conditions. Throughout this period, the Vienna Circle, a philosophical discussion group, examined with new rigor the question of what can be known. Their work built the theoretical foundations of computing. Much of this work was carried out in Vienna's distinctive cafés. This was not a quaint idiosyncrasy; the cafés were in the business of amiability. Parallels to the early Web and its precursors are not difficult to find, and the collapse of Red Vienna may parallel the current predicament of the Web.

### CCS CONCEPTS

- Social and professional topics ~Professional topics ~History of computing
- Information systems ~World Wide Web

### Keywords

Hypertext, History of computing, Philosophy of computing, Kurt Gödel, John von Neumann, World Wide Web, Villainy

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## 1 Ages of The Web

In thinking about the history of the Web, we may usefully recognize at least three distinct eras [1]

- **The Home Page Era**, when everyone had their own page, site, or weblog, on a server over which they exerted substantial control. Sites were static or served by tiny content management systems like Frontier or Blogger.

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- **The Social Media Era**, when everyone had their own feed on one or more social media platforms. Sites were served by massive content aggregators, many of which specialized in customizing content to engage the viewer.
- **The Era of Villainy**, in which platforms sought to deceive and defraud their users through misinformation campaigns, cryptocurrency fraud, surveillance, and other means. [2; 3]

These changes are substantial. Ten years ago, finding yourself in a strange city, you readily might have located local food blogs and dining forums filled with knowledgeable discussion. Today, search engines show you pages of SEO-optimized text, many of them composed by machines that have never tasted a potato, while restaurant review platforms are replete with mendacity and extortion. Twenty years ago, the original Wiki blazed with its ambitious exploration of the foundations of software design, with patterns and agility. [4; 5] Today, Wikipedia is a platform for defaming women in software and for tagging Jews.[6] Twenty-five years ago, we strove for usability; today, every page opens with a popup requiring the user to assent to a cookie policy that, by design, few users understand.[7]

Our conventional narrative of these events endows large corporations and governments with agency driving the changes we observe.[1; 8] It may prove informative to examine the events surrounding the discovery of the foundations of computing, the environment in which the work was done, and the disturbing aftermath. These suggest intriguing parallels to the Web.

## 2 The Vienna Circle

Core ideas of the foundations of computing originated in a weekly meeting (Thursdays, 6PM) in the office of Moritz Schlick, a professor of Philosophy at the University of Vienna [9; 10]. Schlick's colleague Hans Hahn was a central participant, and by 1928 Hahn brought along his graduate students Karl Menger and Kurt Gödel. Regular participants included Rudolf Carnap, economist Ludwig von Mises (brought by his brother Frederick, a physicist), designer Otto Neurath, and architect Josef Frank (brought by his physicist brother, Phillip). After a few hours of discussion in Schlick's office, the group would adjourn to a nearby café where discussions continued amid an even broader circle.

At a conference in Bologna in 1928, David Hilbert had outlined a number of outstanding problems in mathematics. Gödel had decided that, for his doctorate, he would attempt to solve one of these. seeking to prove that first-order logic was complete and consistent.[11] It seems he never told his advisor: Hahn was

surprised when, six months later, Gödel presented his proof to the Circle and handed in his dissertation. By the following December, Gödel told Rudi Carnap (over coffee at the Café Reichsrat) that he could prove that higher-order formal systems, such as *Principia Mathematica*, were incomplete<sup>1</sup>. [15; 16] When he mentioned this result in passing to a conference where he was presenting his dissertation results, a young professor from Hamburg immediately grasped the implication. That was John von Neumann. [17]

This convivial circle was far from unique. The Thursday meetings were followed by a more mathematical Friday session with Hahn, Gödel, Carnap, and von Neumann when he was in town. An intersecting circle – Neurath, von Mises, Oskar Morgenstern – established the Austrian School of free-market economics. There were theatrical circles (Peter Lorre, Hedy Lamarr, Max Reinhardt), and literary circles. The café was where things happened. [18; 19]

### 3 Amiability and the Café

After the First World War, Vienna was in terrible trouble. The city had been built to be the seat of an empire. Now, the empire was gone and former provinces, independent and hostile, no longer supplied Viennese industry with raw materials or bought Vienna's manufactured goods. After the war, nobody was buying much. Huge refugee encampments on the outskirts of Vienna housed people who had fled new and hostile governments, notably East European Jews, who would comprise 10% of Vienna's population and 30% of its university students.[20] Though Austria's government was right-wing and Catholic from 1919, Vienna's city administration was socialist, nicknamed Red Vienna. Housing and social services were at the top of its agenda. [21; 22]

Scarcity did not impede the amicable debate on which these circles depended. Otto Neurath was a socialist technocrat close to the city administration, while Ludwig von Mises believed he had proven socialism itself to be a phantasm. This cannot have been easy: Neurath liked to interrupt, and few of the other regulars enjoyed that. Gödel was obsessive-compulsive and paranoid, sure that people were trying to poison him [11]. In 1936, he would spend four months in a mental institution.<sup>2</sup> Architect Frank was dependent on public housing contracts [23], which von Mises opposed as waste. Yet, somehow, everyone got along<sup>3</sup>.

One emollient was the presence of some participants who were notably personable. “The pleasant atmosphere at the meetings of

<sup>1</sup> This result is taught to all students of computing, and its consequences are so important to the practice of the craft of software that it is hard to conceive of a world in which (as most people had expected) the completeness and consistency of higher-order logic was true. In such a world, compilers could reliably detect infinite loops and deadlocks at compile time. There would be no need for test-driven development; we could prove correctness or let our compilers do so. Dijkstra's discipline of programming would work. [12] The distressing implications of incompleteness, paired with Heisenberg's equally disturbing Uncertainty Principle, gave late Modern and Postmodern thought their characteristic insistence on contingency and unknowability, on silence and the unspeakable. [13] “The characteristic feature of our postmodern existence is epistemological scepticism.” [14]

<sup>2</sup> Gödel's biographer speculates that the institutionalization was related to an abortion undergone by his girlfriend and later wife, Adele. [11]

the circle,” Carnap would later recall, “was due above all to Schlick's personality, his inexhaustible friendliness, tolerance, and modesty.” [10] The Viennese café itself was designed to smooth over rough points and rougher personalities. One was met at the door by a headwaiter who was careful to address patrons one or two notches above their deserved rank. A student would be *Herr Doktor*, an unemployed postgraduate was *Herr Professor*. [18; 24]

The idea of the café was intimately tied to the Enlightenment. Indeed, the habit of coffee and tobacco as part of a common quest for understanding has plausibly been attributed to the influence of the early Native American intellectual Kandiaronk, who may have travelled to the court of Louis XIV and who certainly knew people who did.[25] The people of the Eastern Woodlands had constructed a culture built around communal smoking and consensus in reaction against the previous Mississippian state centered on Cahokia.[26] From the era of Dr. Johnson [27; 28], a great deal of intellectual life across Europe had been conducted in cafés. In the United States, professors had offices and meeting rooms: in Europe, they had their accustomed café.

The amiability of Vienna's cafés was a response to their circumstances. Designed to serve an imperial capital, they now had too much space and too few customers. There was scant need to turn tables. Patrons might linger; perhaps they would order another cup, or one of their friends might drop by. One could play chess, or billiards, or read newspapers from abroad. No one was making any money, and everybody was on the same side<sup>4</sup>.

### 4 An Amiable Web

The early Web and its precursors were also notable for their amiability. Vannevar Bush envisioned hypertext as the occupation of friendly New England professors, sharing erudite thoughts about the curious ways people resisted innovation.[30] Engelbart's team was a happy, youthful crew eager to change the world [31], not so very different from the acid tests that Ken Kesey was conducting up the road.[32; 33] Stewart Brand's *Whole Earth Catalog*, a service business for communes, was produced across the street; the Engelbarters and the Whole Earthers played volleyball at lunch. [34; 35] Ted Nelson adopted a visual style and a rhetoric from Whole Earth.[36] Nobody was making much money, and no one expected to: they were making a new literature or a new world<sup>5</sup>. [38]

The early Web was amiable because sharing links cost nothing and gathered audience. In a (possibly intentional) echo of the

<sup>3</sup> Except Wittgenstein, who the circle studied intensely and who occasionally joined discussions before he decided that he would only meet with a small (and changing) subset under controlled conditions. [22]

<sup>4</sup> In the basement of the Café Arkaden, Jura Soyfer staged his musical comedy “The End of The World” (1936). [29] The café was happy to provide space in order to get people in the door.

Professor Peep: I believe you do not completely comprehend the full significance of my discovery. The comet is going to destroy everybody.  
Führer: Destroying everybody is my business!

<sup>5</sup> Nelson did keep an eye on copyrights and trademark protection, though this was also a strategy to emphasize his seriousness in a time when any Web, world-wide or otherwise, seemed a fantasy. Otlet built a museum and assumed its costs would be

Engelbart group's focus on keeping all their discussions inside the tool they were building, the original Web page emphasizes that "Everything there is online about W3 is linked directly or indirectly to this document." [39] Early weblogs experimented with blogrolls and other forms of traffic exchange. [40] An influential paper at the Second WWW Conference advanced "Toward a Philosophy of the WWW" by examining public spaces in which visitors would understand rules necessary to a public space. [41] The early Web was deeply concerned with authenticity and with the sincere performance of character, and when that performance was contrived or fictitious, outrage ensued. [42] [43]

## 5 The End of Vienna

A Fascist-Catholic alliance put an end to Red Vienna, winning the municipal elections in 1934. Because this regime and its German counterpart were successful in convincing their numerous supporters to commit unimaginable crimes, its political methods have been studied in exceptional depth. [44-48]

Red Vienna had been fascinated with physical science and intrigued by the nascent social sciences. The new Fascist government borrowed the trappings of scientific anthropology to show that its opponents were members of a subhuman race. Further efforts sought to increase the atomization and isolation of workers, focusing their loyalty on the state alone. [44]

In place of working to promote solidarity, the government focused on an unceasing series of conspiracy theories that sought to explain impoverishment and alienation as the work of Jews and other enemies of the state. [45] That these conspiracies were implausible was unimportant: what mattered was that they were entertaining. [47] Cruelty was both theatrical and fun. Where Red Vienna had worked to educate and to engage workers in governance, the new government insisted that lies were truth, that truth was unknowable, and that there was nothing to be done. [44][49]

Some of the Vienna Circle had Jewish ancestry, and those who did not — Schlick, Carnap, Gödel — were persecuted for their association with Jews<sup>6</sup>. Neurath was lecturing abroad on election day and headed direct for The Hague where he set up a branch of Paul Otlet's Mundaneum. Schlick was murdered by a deranged student on the steps of the University in 1936; the student was freed because the ideas that Schlick had propounded were unbearably Jewish. [9] Jura Soyfer, whose *The End Of The World* was produced in the basement of the Café Arkaden where the Vienna Circle so often met, died in Buchenwald. [29] Elections have consequences.

Red Vienna needed the amiability of the café because it needed (and cared about) ideas, and because it believed that society could be made better. Fascist Vienna had little use for any of that.

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covered by patrons or the state. Of all the precursors, the one most engaged with the economy was probably Emanuel Goldberg. [37]

<sup>6</sup> The Vienna-born art historian Ernst Gombrich objects sensibly that few of these Viennese intellectuals thought of themselves as primarily or essentially Jewish, and that the conventional narrative adopts the Nazi racial frame. Arendt notes, though that one might escape from Judaism by conversion, from Jewishness there was no escape. [44] "We lack a term to designate all individuals of Jewish ancestry," Gombrich writes, "and thus we cannot but use basically racist terminology. In fact, I

## 6 The Web After Amiability

Fascism's destruction of its opposition has been mirrored in the repudiation of the early Web. Siloed platforms benefitted from algorithmic amplification of anger [53], separated the Web into disjoint discourse zones and then disconnected those zones along national and supranational boundaries. [8] Trolls, often serving corporate or state actors, sought to discredit the notion of truth. [3] The Web-borne QAnon myth, for example, echoes The Protocols of The Elders Of Zion in form as well as political function. [45] 20<sup>th</sup> century totalitarianism stemmed from the atomization of experience and the isolation of the individual [49]; the replacement of links by algorithms designed to optimize engagement and controlled by billionaire politicians has long been seen as both symptom and cause of unbearable loneliness. [54]

One lesson from the collapse of Red Vienna, obviously, is that things can go terribly wrong. It may be wise to keep your suitcase packed.

The view that the design of systems matters to society has been derided as naïve American technodeterminism [55], but might better be seen in our context as Viennese critical rationalism. The Web was not designed for amiability: its amiability was a response to economic and institutional forces. The absence of amiability in our current Web is not an aberration from baseline normality; it, too, has been engineered by people and institutions who benefit from its cruelty, conflict and deception.

When the former amiability of the early Web is recalled, it is sometimes followed by sentimental calls for understanding, accommodation, or tolerance. However, tolerant people tolerate their opponents, and their intolerant opponents can use this to deprive them of access to the public square. In 1940, when von Neumann finally convinced Gödel to take a job at Princeton, it was necessary to pay heavy fines to obtain emigration permits. The official in charge of collecting fines from emigrating Jews would look back on this as the most enjoyable posting of his career. His name was Eichmann. [15]

Gödel's Incompleteness Theorem casts a lasting shadow over our understanding of the signs and our notion of truth. Since we cannot prove everything that is true, how are we to know our beliefs are not simply imposed by whim? [56] On the Web, Foucault's conception of the Discourse, in the hands of activist gamers, became a force for driving women out of game design and software engineering. [57-59]

Much research in Web Science and Hypertext during the past decade has been dedicated to automated moderation of social media by detecting hate speech, nudity, racism, sexism, and bullying. It seems not to have been realized until quite late that techniques for recognizing hate speech might be useful in locating the most engaging hate speech and spreading it more widely. Automatic detection of bullying might be mildly useful to schools

think it was precisely the diversity of language and culture among the Jews of the diaspora that left race as the only distinguishing criterion, after religion had ceased to serve that purpose. Two movements, of course, were here involved: the antisemites and the Zionists." [50] The antisemitism of the University in the 1930s cannot have been easy to ignore, nor is the historian required to ignore it. [51] [52]

but could be an invaluable tool for nascent authoritarian movements seeking to recruit a *Schutzstaffel*. [44] Techniques used to detect racist speech ought to be capable of detecting the expression of dissident opinions; these might be useful in web fora but could also be deployed on street corners or public transit to identify subjects for interrogation and correction.[53]

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