

---

An Invited Lecture delivered at the Freie Universitaet Berlin *Pfaffkolleg Konferenz*  
**STUDYING PATH DEPENDENCIES OF BUSINESSES, INSTITUTIONS  
AND TECHNOLOGIES**  
held 27-29 February, at Harnack-Haus, Berlin

---

## **Techno-Institutional Co-evolution...and the End of Copyright History**

**Positive feed-backs, precedents, path dependence and punctuated  
equilibrium in five-centuries of printing and publishing**

By

**Paul A. David**

*Stanford University and the Oxford Internet Institute*

*22 February 2008*

### **PROLOGUE**

This lecture traces the interplay of systematic forces and contingent events in the co-evolutionary dynamics of technological and institutional structures that came to govern the printing and publishing industries of modern economies, and whose influence now extends to the entire domain of digital reproduction and distribution of text, images and sound in cyberspace.

Institutional protections for intangible property rights and their codification in copyright law have been shaped more by the technology and economics of “publishing” than by the economics of “authorship.” This has been so from the remote pre-history of such institutions ensuing upon the disruption of the public copyists’ trade wrought by Gutenberg’s inventions.

My central substantive and historical contention, in contrast with much that is written today by legal scholars of and economic analysts of intellectual property, is that the legal institutions of copyright as we know them are not resultants of enlightened and socially rational institutional design properly. Rather, they are properly seen to be consequences – and in many instances unintended consequences -- of “industrial policy” actions that have responded in the past and continue to be responsive mainly to the changing interests of printers and publishers.

It is as misleading in historical terms as it is incorrect in terms of economic analysis to present the modern system of copyright protections as a necessary social innovation that has been devised to protect *the creators* of information-goods from plagiarists, “free-riders” and “pirates.” Economic incentives and material rewards for authorial efforts were not and are not central in this story, however much those aspects of the subject continue to fascinate economists and serve to rationalize the obtrusive conflict between legalized (intellectual property) monopolies and the reigning ideology of market competition.

The story highlights three great “technological disruptions” and their sequelae in the transformation of business organization and the emergence of political and legal institutions that have regulated the printing and publishing of texts. First came the “moveable metallic type revolution” of the mid-15<sup>th</sup> century, familiarly associated with the work of Gutenberg, which brought into existence a novel configuration of cost and demand conditions that shaped the industrial organization of the European printing and book trades for the following three centuries. Then next big disruption of this kind came with the “stereotype and lithographic revolution” of the late 18<sup>th</sup> and early 19<sup>th</sup> century, ushering in the age of cheap printing and mass publishing of books, pamphlets and newspapers. Third and most recent in the sequence is the ongoing “digital information technology revolution”, which began in the late 1950’s with the introduction in the newspaper and book printing trade of the “cold-type” process for type-setting, and, gathering momentum during the closing decades of the 20<sup>th</sup> century, has been disrupting and transforming the recorded music and film industries in the contemporary world.

From the later part of the 15<sup>th</sup> century onwards, the industrial and commercial repercussion of these major “innovative discontinuities” set in motion institutional reactions, so that the diffusion and elaboration of the new technology, and the business formations grounded upon it came to be channeled and stabilized by established institutional structures – particularly those of the emerging statutory regime and judicial protections provided to holders of copyright. Yet, in so doing, the spread and development of the printing and publishing trades created conditions that provided an impetus to the search for new technological capabilities that, eventually would pose fundamental challenges to the unmodified continuation of those same institutional structures. Similarly “shaken” in these episodes were the social norms and cultural practices that previously had evolved and adapted themselves within that technologically and legally grounded economic and political environment.

The process of techno-institutional interactions that I visualize as having unfolded in this sphere over the course of the past demi-millennium is thus distinctively *co-evolutionary* in character. In it one may see self-organized, cross-catalytic dynamics in the interplay of technological and institutional innovations. “Punctuated dynamic equilibria” is the label that one might reasonably affix to the two prolonged phases of path-dependent incremental development that stand between the first and the second, and the second and the third of the major distribution that mark the chronology of industrial and legal developments, and their ensuing myriad unintended consequences – both good and bad.

Beyond such intrinsic interest that an historical account presented from that conceptual perspective may hold (for this particular audience), it is meant to serve two additional purposes. One is simply to identify and document both the elements of continuity and the unprecedented features of changes that today are calling into question the future of the copyright system as we have known it. The second purpose is focus attention upon institutionally and technologically realistic responses, measures proposed in the final, forward-looking part of this essay, that would restore and maintain a socially beneficial balance between the a regime of copyright protection and market incentives, on the one hand, and, and preservation of the open access to the cultural legacy and creative usage of a broad “information commons” governed by public domain-like arrangements.