Interpreters of the Literary Canon and Their Technical Instruments: The Case of Balzac Criticism

Grégoire Mallard

Princeton University and Ecole Nationale des Ponts et Chaussées (LATTS)

Drawing insights from the ethnographies in the natural sciences, which have focused on the role of technical instruments in laboratory practices, this article asks, "What role do technical instruments play in the humanities?" Editions of La Comédie humaine, written by Honoré de Balzac, are taken as a case study. Primarily based on ethnographic research with Balzac scholars, this article traces the evolution of Balzac's text from a unified and unadorned text in the 1930s, to a single annotated text in the critical edition of the 1970s, and to a searchable electronic format of different versions. The author shows that the different schools of interpretation in Balzac criticism (traditional, semioticians, socio-critics) constructed these diverse editing technologies to influence the evolution of literary theories. For instance, traditional scholars' theory of authorship entertains en elective affinity with the critical edition of La Comédie humaine. Socio-critics challenged its assumptions and constructed electronic editions to develop their own theories, particularly on the genesis and reception of Balzac's texts. By focusing on the epistemic cultures in which research practices are embedded, this case study complements purely institutionalist perspectives on knowledge-production in the academic field and highlights the presence of diverse epistemic cultures in literary criticism.

*L*a *Comédie humaine* by Honoré de Balzac (1799–1850) is considered a landmark in the history of the nineteenth-century French novel. Balzac's genius was early signaled by authors like Friedrich Engels (Gleize 1994). His originality was to relate all his novels in one overarching masterpiece, *La Comédie humaine,* which introduced characters who reappeared from one novel to the other—a technique that increased the impression of a living world (Barberis 1972). In the 1990s, his name still figured among the top five authors read by French high school students (Baudelot and Cartier 1998:34).[1] While lay readers of Balzac may not be concerned with issues dealing with the edition of his texts, professional and academic

[1] Independent of the level of education, 100 percent of French men in the 1960s cite nineteenth- and twentieth-century classics when asked to list five authors they know (Escarpit 1970:297)—Balzac coming fourth for college graduates.

interpreters have increasingly been concerned with how *La Comédie humaine* shoud be edited. Here, I investigate how Balzac specialists use editing technologies to represent his texts, and how changes in editing-pratices have paralleled the evolution of literary theories and interpretations. Following in the wake of laboratory ethnographers (Latour and Woolgar 1979; Knorr Cetina 1981, 1999; Fujimura 1996) and historians of scientific instrumentation (Hacking 1983; Galison 1997; Daston 2000), this paper shows how new technical instruments in disciplines outside the natural sciences, more specifically in literature, bring new problems and theories to the forefront of literary criticism and black-box others. What I investigate here are the epistemic cultures (Knorr Cetina 1999) in literary criticism, and more precisely in Balzac criticism.

This case study focuses on the changes taking place in Balzac criticism as a result of the arrival in the 1970s of "modernist" scholars, who challenged traditional answers to key questions. Such questions include: how literature relates to history; how literary genres are constructed, and how aesthetic perfection emerges from the process of creative writing.[2] From the 1950s onward, traditional scholars have kept alive the positivist approach of literature initiated by French critics Charles Augustin de Sainte Beuve (1804–1869) and Hippolythe Taine (1828–1893)—an approach later defended by Gustave Lanson in academia (1857–1934).[3] These critics studied the literary

influences that impacted Balzac's novels as well as the novels that Balzac's œuvre influenced. In contrast, modernists have been influenced by Roland Barthes (1915–1980), who, in the 1960s, proposed a general science of semiotics (the analysis of how signs navigate not only among texts in literature, but also in philosophy, history, etc.), which he illustrated by his essays on modern canonical figures in literature and history (Barthes [1966] 1987, [1954] 1987). In the 1970s, modernists attempted to renew the interpretation of Balzac's texts using semiotics and socio-criticism (the latter approach being an attempt at historicizing the semiotician approach), and they provoked many controversies with traditional scholars.[4]

Analyzing the divergent role of traditional printed critical editions versus the emergence of interactive digital CD-ROM editions of the novels of Honoré de Balzac, this paper offers a case study of how technological innovation has substantively impacted the work of traditional and modernist literary scholars by affording them the tools to create editions of Balzac's work. In other words, this paper shows that how scholars envision their Balzac is shaped as much by their theoretical agenda as it is by the technical instruments used to read him. It demonstrates that the meaning of a text is not fixed after publication, not only because of the interpretive freedom of readers (Sartre 1949; Jauss 1978), or their social positions and values (Griswold 1987, 1993, 2000), but also because of the multiplicity of technologies of representation and intervention (Hacking 1983) and the epistemic cultures (Knorr Cetina 1999) in which scholars' interpretive practices are embedded.

After reviewing the theoretical concepts and findings from laboratory ethnographies and the sociology of knowledge, and after presenting my data, the first empirical section focuses on how, at the end of the 1970s, a representation of literature was transformed into a technical instrument, namely the critical edition of Balzac's

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[2] In France, modernism conveys the opposition to traditional scholarship and signals a specialization in the study of modern classics, like Balzac, Flaubert, and Proust (Tadié 1997). Many modernist scholars would be viewed as "postmodern" in the United States, but this term has not yet come to French academia, even if some of the canonical figures of the postmodern movement, such as Jacques Derrida, hail from France (Lamont 1987).

[3] "Historical positivism" finds its origin in nineteenth-century French criticism (Tadié 1997). It differs from the "sociological positivism," developed by August Comte and its "sect of positivists" (Heilbron 1995), or from the later "logical positivism," developed in the 1930s by Von Neurath and the Circle of Vienna. Historical positivism meant for literary critics that their work of interpretation should be restricted to the characteristics of literary œuvre, which

could be traced to the life of their author or to precedents in the history of their literary genre. Hence, it tended to develop a purely external approach to literature.

[4] Barthes (1963, [1966] 1987) had provoked a violent debate in the 1960s, the most famous one being with Raymond Picard (1965), a Racine scholar from the Sorbonne.

works in the Pléiade collection.[5] This section shows that traditional scholars not only proposed a specific approach to literature but also a definition of what Balzac's real text is, which, in their view, corresponded to the version of *La Comédie humaine* called the "corrected Furne"—published by Furne and Co. from 1842 to 1848. This edition is the last one that Balzac saw in print during his life, and it is the one on which he added handwritten corrections to almost every page. The second empirical section explains how modernists first conducted a semiotician analysis of Balzac's poetics, and why they shifted from theory-making toward developing digital editions of Balzac in the early 1990s. It shows how the very development of these new digital editions helped some of the modernists challenge key hypotheses made by traditional scholars and put forth a new theoretical program.

THEORY

Laboratory ethnographers (Latour and Woolgar 1979; Callon 1986; Latour 1987; Traweek 1988; Fujimura 1996; Knorr Cetina 1999) show that the construction and use of specific technical instruments by scientists impacts what they conceive as reality, and what objects of research are legitimate. As Latour and Woolgar (1979:27, 62) write, "[T]he artificial reality, which participants describe in terms of an objective reality, has in fact been constructed by the use of inscription devices. . . . It is not simply that phenomena depend on certain material instrumentation; rather the phenomena are thoroughly constituted by the material setting of the laboratory." Latour and Woolgar (1979:51) define a technical instrument as "an inscription device [which] is any item of apparatus which can transform a material substance into a figure or a diagram which is directly usable by the members" of a research community. An inscription device (or technical instrument) produces standardized inscriptions at will by reducing, or translating, complex phenomena occuring in the outside world into features that can be graphically represented in two dimensions in the con-

trolled environment of the laboratory—what Rheinberger (1997, 2003:625) calls the "redimensionalization of reality." The power of these representations stems from their being manageable and transportable, which makes things representable from one context to another and creates commensurability between otherwise dislocated elements.[6] This general property of technical instruments holds true whether the thing represented by technical instruments is a disease (Latour 1993a, 1993b), the void in the air-pump (Shapin and Schaffer 1985), radioactive scintillations of splitting atoms (Pickering 1984; Knorr Cetina 1999), the spreading of plagues across cities (Foucault 1979), values of goods across market places (Porter 1995; Knorr Cetina and Bruegger 2000:168–170; Callon and Muniesa 2002:2–5; MacKenzie and Millo 2003), or socio-professional categories (Desrosières 1993; Espeland 1998).

When it comes to the humanities, sociologists interested in the genesis of cognitive categories have downplayed the specific role played by technical instruments in interpretive practices. In the case of literary criticism, however, new technical instruments, such as paper or digital editions, can transform an almost infinite amount of paper, written words, collages, and sometimes drawings and stains into a standardized space of representation, where sentences can be read without interruption or holes in the discourse. They can also create the same conditions of interpretation across otherwise disparate contexts by allowing one version of a text (say, the tenth manuscript version of a text securely kept in one archival box) to be read at different places at the same time. Since they confer fixity and stability upon what is perceived as the real text of an author, these editions can be characterized as technical instruments in the sense of Latour and Woolgar (1979) or Rheinberger (2003:623). Used as such, they

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[5] A critical edition is an authoritative edition of a writer's text accompanied by a body of biographical notes and erudite references regarding the sources of the author's inspiration.

[6] Contra Berger and Luckmann (1966) and Berger, Berger, and Kellner (1974), for whom the intensification and stabilization of reality comes only from intersubjective factors, and for whom the growth of technical artifacts "thwarts civility and produces the disencumbered and disembedded self" (Knorr Cetina 1997:3), laboratory ethnographers show that technical objects provide scientists with a clear and localized framework to contruct knowledge (Knorr Cetina 1999:57–61).

confer a taken-for-granted character to the texts that they represent, and they hide the theoretical and political choices that affected their construction (Latour 1987). This latter property of technical instruments has been noticed at least since Heidegger: "equipment, the term [Heidegger] uses for instrument, has the property of being not only ready-to-hand but transparent: it has the tendency to disappear and become a means when we are using it" (Knorr Cetina 1997:10).

Not all technical objects, however, operate as stable black boxes in scientific practice. For Knorr Cetina (1999), the stability and taken-for-granted character of technical instruments depends on the epistemic culture of a specific discipline and/or laboratory—and not from a supposedly general property of technology. In speaking of epistemic culture, Knorr Cetina (1996:300) refers to the "ways and means by which a group arrives at fulfillment of its goal": for instance, how scientists produce and use new technical instruments in their laboratories or how they write the results of their experiments. These practices vary widely across epistemic cultures (Pickering 1995:567; Galison and Stump 1996). In the case of biology, technical objects operate as stable instruments (Latour and Woolgar 1979; Fujimura 1996), as biologists share a "referent-oriented" epistemic culture (Knorr Cetina 1999). Biologists do not routinely analyze how their instruments operate. Instead, they rely on technologies of correspondence, or a "system of assurance through which correct correspondence with the world is monitored" (Knorr Cetina 1999:350), to decide whether or not they trust the results obtained by their instruments. In other disciplines, however, such as high energy physics, technologies are used "as continually unready-to-hand, unavailable and problematic" objects (Knorr Cetina 1997:10). There, "the equation of instruments with technical objects is highly problematic, [especially] in light of today's technologies, which are simultaneously things-to-be-used and things-in-a-process-of-transformation: they undergo continual processes of development and stabilization" (Knorr Cetina 1997:10). High energy scientists learn about how the technical, statistical, and conceptual objects operate and how their mode of functioning affects the reality of what is observed inside the accelerators and detectors. Like psychoanalysts (Knorr Cetina 1992, 1999:39–41), they operate under

the assumption that the symbolic system of signs that they interpret forms "a closed circuitry," with no direct access to an outside referent. In this epistemic culture, which Knorr Cetina calls the "care of the self" (1999:61), knowledge emerges from the continuous observation of the process of representing and producing "reality."

The questions asked by this paper are whether literary technology affects the stabilization of scholars' perception of what is Balzac's real text; whether available editions substantiate the mixed bags of theoretical expectations that critics bring when reading a text for critical purposes; and what epistemic culture dictates their use of the technology available in their fields to edit Balzac's texts. Following Knorr Cetina (1999), I do not intend to show that technical instruments have an independent role on theory-making. Rather, their effect is mediated by the epistemic culture shared by groups of interpreters. Traditional literary critics might believe that their editions represent the real text of an author once a system of correspondence between the editions they use and this referent is devised. In contrast, modernist literary critics, heavily influenced by structural linguistics, which theorized the disunity between signs and referent, might create knowledge by furthering the reflexive knowledge about the instruments that process signs. So, do Balzac scholars blackbox their theoretical assumptions into technologies or do they open editions to empirical scrutiny, conceptual inquiry, and technical revision?

DATA AND METHODS

The philological practice of interpretation and the making of editions of classical writers have taken a scientific turn since the past seventy years or so, and especially since academic critics have called for a "science of interpretation" in the 1960s (Barthes [1966] 1987). The Pléiade collection is usually adopted by French scholars as their reference edition (Kaplan and Roussin 1996:237).[7] Balzac's masterpiece *La*

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[7] Typical of any canon-building collection, out of 176 writers edited in Pléiade from 1931 to 2002, only seven are women writers, and almost two thirds of them are French, even though the collection is supposed to gather the very best of world literature.

Comédie humaine was edited twice in the Pléiade collection: the first time in the 1930s and the second time in the 1970s. The second edition integrated Balzac's last handwritten corrections, newly re-transcribed by Balzac scholars, as well as a scientific apparatus of notes and references, compiling their research. It became the new reference tool for Balzac scholars upon completion, challenged only when modernists edited digital editions in the 1990s.

My research focuses on the relation between the construction of these canonical editions by different groups of scholars and their programs of theory-making. From 1999 through 2000, I conducted 16 semiformal, qualitative, in-depth interviews with Balzac scholars, as well as informal interviews with 12 other Balzac scholars during nonparticipant observations at conferences and seminars. I conducted the majority of these interviews after six months of observations in their different activities (seminars, conferences, etc.). Semiformal interviews lasted from an hour and a half to three hours, and they concerned the classifications that Balzac scholars use to define good or bad scholarship, a method also used by Lamont, Kaufman, and Moody (2000). I asked interviewees to reflect upon their trajectory from the beginning of their specialization in literature studies to the present day. I asked them why they chose Balzac as a research specialty; when and why they chose to participate in either the modernist or traditionalist Balzac research groups; how and why they came to be involved in the building of a specific edition of Balzac's texts; how they assessed the intellectual quality of their theoretical and editorial activities in these research groups; and how they assessed the intellectual quality of the other groups' activities. These interviews were specifically aimed at understanding scholars' reasons for undertaking new editions of Balzac's works as well as collective theoretical projects. For instance, traditional scholars were asked why they participated in the edition of the second Pléiade, and modernist scholars were asked why they edited Balzac in digital format. The interviews also captured what they thought of the editions prepared by other schools. Modernists were asked how they used the second Pléiade and traditional scholars what they thought of the new digital editions.[8]

I conducted these interviews along with observations and archival research. More specifically, I observed two international and two national conferences and attended seminars with Ph.D. students.[9] This work gave me the opportunity to do informal interviews with scholars not included in my original battery, to expand on my questions from some of the semiformal interviews, and to understand what thereotical debates agitated Balzac criticism at the end of the 1990s. In addition, I observed work sessions by the one modernist group in charge of the digital edition of Balzac's texts. I complemented these observations by studying the personal archives of three Balzac scholars. Observing conferences and seminars as well as seeing their archives was essential for getting a better understanding of the evolution of the modernists' research program, the way they divided work among themselves, and how they accomplished their projects. Archives provided first-hand evidence of the theoretical positions and dynamics that motivated the project of digital editions of *La Comédie humaine* in the mid-1980s. I asked the scholars who had given me access to their archives to comment on them and to highlight their motivations.

Among the 16 scholars whom I interviewed outside conferences and other ethnographic fields, four belonged to the traditional school, four were semioticians, and eight were considered socio-critics. This sample of interviewees was selected to represent the diversity of institutional and theoretical positions in Balzac criticism. To know what schools existed in Balzac criticism, I first established a list of the 50 scholars most active in Balzac criticism since the 1960s, and classified scholars based on my knowledge of the field, on the information of two existing international groups devoted to

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Balzac is the author with the greatest number of edited volumes (23 volumes).

[8] Modernists entered in the field of Balzac criticism in the mid-1970s and few used the first Pléiade for their theoretical research.

[9] "Balzac dans l'histoire," Tours, November 1999; "L'envers de l'histoire," Bordeaux, March 2000; "Balzac et la correspondance," Paris, April 2000; and "Les usages de Balzac," Cerisy, June 2000.

Table 1. The Academic Visibility of Balzac Scholars

	Mean	CI	SD	Total N
Specialization in Balzac Criticism (t = –4.20)[a]				
Traditional scholars	.75***	(.65–.85)	.24	25
Modernist scholars	.45***	(.34–.56)	.26	25
Total	.60	(.52–.68)	.29	50
Publications per Scholar (t = 3.50)				
Traditional scholars	13.1***	(10.5–15.6)	6.1	25
Modernist scholars	30.1***	(20.4–39.7)	23.3	25
Total	21.6	(16.2–27.0)	18.9	50
Citations per Scholar (t = 2.37)				
Traditional scholars	38.6**	(19.6–57.5)	45.9	25
Modernist scholars	74.6**	(49.7–99.4)	60.1	25
Total	56.6	(40.6–72.5)	56.0	50

Note: Two-sample *t*-tests conducted per variable, testing whether estimates of means differed significantly for traditional and modernist scholars. CI = 95-percent Bayesian confidence intervals for each estimate; SD = standard deviation.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

[a] Degrees of freedom for each two-sample *t*-test with equal variance are (N–2) = 48, where N is the number of observations.

Balzac criticism,[10] and on the information provided by citation databases.[11] Among these 50 scholars, half can be labeled traditional and half modernists (see Table 1). Traditional scholars are those who published in French traditional literary reviews (*L'Année balzacienne, Revue d'histoire littéraire de la France*) since the 1960s, had careers at traditional institutions like the Sorbonne University (or some provincial French universities), and were highly specialized in Balzac criticism (they published on average more than three-quarters of their articles on Balzac). In Balzac criticism, they published, on average, 13.1 articles from 1975 to 1995 and received 38.6 citations during the same period,

significantly less than modernist scholars, who published on average 30.1 articles and received 74.6 citations (see Table 1). In contrast, modernists accumulated recognition on the international market by publishing in international journals (*Poetics Today*, *Yale Review of French Studies*, *Poétique*, etc.)—see Bourdieu and Passeron (1977) and Bourdieu (1988) for a similar analysis of the French field. They were tenured in the new Parisian universities created during the 1960s and 1970s, or in international universities, and were not fully specialized in Balzac criticism (they published less than one-half of their articles on Balzac). Among the modernists, I also distinguished between the "semioticians" and those interested in socio-criticism, whom I call the "socio-critics." In Balzac criticism, semioticians, active in departments of French literature at Canadian and Dutch universities, published primarily in reviews devoted to studies of poetics and narratives, like *Poetics Today* and *Poétique*, whereas socio-critics published in interdisciplinary reviews focused on historical and sociological analysis, such as *Romantisme, Europe,* and *Poetics*.[12] The theoretical differences between

[10] I keep these two international groups anonymous in the rest of the paper to help protect the anonymity of the interviewees. All the interviewees are kept anonymous as well.

[11] I used the "Art and Humanities Citation Index 1975–1995" and "Social Science Citation Index 1975–1995"to determine who cited Balzac most frequently. To count levels of specialization (measured by number of publications on Balzac per scholar divided by total number of publications per scholar), numbers of publications and citations, I complemented these two bibliographic databases by counting publications and citations in *L'Année balzacienne*, an important review in Balzac criticism, not taken into account by either of these two databases.

[12] *Poétique* was founded, for instance, in the 1970s by Gérard Genette, a famous formalist semiotician. Founded by Marxist socio-critics, *Romantisme* is an

semioticians and socio-critics were particularly significant for the decision to start digital editions of Balzac's work. In the rest of the paper, I therefore always distinguish between semioticians and socio-critics.

CRITICAL EDITIONS AND TRADITIONAL LITERARY THEORY

From the 1960s to the beginning of the 1980s, critical editions (those editions that include not just Balzac's novels themselves but also scholarly essays and relevant annotations) became the dominant way of publishing Balzac's work. This section shows that traditional scholars started building critical editions of *La Comédie humaine* (in particular, the second edition of *La Comédie humaine* in the Pléiade collection, published at the end of the 1970s) to advance their theoretical understanding of what literature is and how it should be analyzed. They felt that previous editions of Balzac's texts did not offer the fullest opportunities to develop Balzac scholarship in the direction they wanted. The previous edition (the Pléiade collection's first edition of *La Comédie humaine*, published from 1935 to 1939), which they had used before the completion of the second edition, had certain merits, but these were related to the external practicality of books, rather than to their intrinsic "scientific" character. Printed on fine Bible paper, each leather-bound volume of *La Comédie humaine* was easily transportable—a quality early stressed by André Gide, who called these volumes "traveling masterpieces." A traditional interviewee describes this first Pléiade edition in the following terms:

> In the [first] Pléiade, there was only the text, there were no notes, no preface, nothing, only the naked text. It was unique. There was *La Comédie humaine*, plus some unfinished manuscript at the end, but it was not a critical edition. It had the advantage of standing in ten volumes in my bookshelves, and it is still there. For me, it was the Grail, the epicenter of everything.[13]

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interdisciplinary review mostly concerned with history and literature. *Europe,* attached to the French communist party, was a major review in Marxist studies. I do not specify Balzac scholars' academic departments in order to preserve their anonymity.

[13] All extracts of interviews are translated from French by the author.

These first Pléiade volumes were neither prepared by, nor oriented toward, scholars but toward amateurs of *Belles Lettres*. As described by the interviewee, the first Pléiade leather-bound volumes of Balzac contained only his text without erudite preface, nor linguistic and historical notes. Their texts' "nudity" reflected the common idea that literary *œuvres* are perfect and total entities, whose aesthetic qualities can be appreciated independently from any knowledge of their position in the history of literature (Kaplan and Roussin 1996:240). For each author appearing in the Pléiade editions during the 1930s, a young novelist or poet currently being published by Gallimard would write a preface narrating his or her aesthetic debts to the great master—a very intelligent strategy used by Gaston Gallimard to promote his avant-garde writers (Assouline 1984). This idealist vision of literature was opposed to the positivist approach of literature defended by traditional scholars. Traditional scholars in Balzac criticism, largely inspired by the historical positivism of Gustave Lanson at the Sorbonne, advocated for editions of Balzac that would give readers the necessary historical and critical background to help them better understand and appreciate his work.

Instead of simply using the first Pléiade edition, traditional scholars prepared various critical editions of Balzac—some on Balzac's earlier novels, some on the many novels from *La Comédie humaine*, and some on his more philosophical texts. Many of these editions were published in the "classical yellow collection of Garnier-Flammarion," as one of the traditional interviewees recalled it. Yet the key moment in this history came in the mid-1970s, when traditional scholars convinced the Pléiade director, whose attention turned toward a booming academic public, to start a critical edition of Balzac's entire *œuvre*, building on the work of the first generation of traditional scholars (Kaplan and Roussin 1996:252). This second edition of Balzac (1976–1981) in the Pléiade edition soon became the reference for all Balzac scholars (its pagination is the reference for citations in scholarly journals) and is their main working tool.

This second edition contains historical notes, a biography of Balzac, references to other versions of his texts when pertinent, and an index of reappearing characters. In contrast to the

first edition of Balzac, which contained ten volumes of texts, the notes and preface in the second edition added a substantial number of historical and linguistic facts for the reader, hence making it significantly longer than the first edition. Talking about this second Pléiade edition, a traditional scholar says,

> The first volume [of the second Pléiade edition] starts with the biography that [one scholar] had prepared for his doctoral thesis. Then, the editor used many of the critical editions that most of us had prepared during the 1960s. This is a collective work that really represents more than a decade of efforts for accumulating knowledge on his life and on his work, and it seemed very important to us that readers be introduced to Balzac's life before they got introduced to his works.

As this quote illustrates, the second edition of Balzac was prepared by traditional scholars animated by a positivist conception of literature. They provided facts to the reader about Balzac's life and works—not theoretical interpretations about literature in general. For traditional scholars, theories are not important, facts are. For instance, an interviewee says that

> Our idea was to edit properly Balzac's texts, and if we had some ideas, to cite properly Balzac's texts, and then if we wanted to build theories, to do so, but without transforming what Balzac wrote. In this sense, the spirit of the professors who edited the Pléiade was liberal in the sense of the nineteenth century. You could believe in any theory, but it had to respect the text. And this critical edition [in the Pléiade collection] was necessary to achieve this. We were used to reading Balzac in the first Pléiade or in the edition Connard, which was heavily reliant on the Larousse dictionary of biographies, but we did not really have a good annotated edition. Though Balzac is still very contemporary, his world is fading away. We must acknowledge that we need historical and linguistic notes that editors now ask for. So for twenty years, I prepared Balzac's [correspondence].[14]

A critical edition therefore follows the traditional methods of interpretation, whereby history and biographical research matter only to produce objective interpretations about the chronology of an author's work—see Chevalier (1981:v–viii) for a criticism of this positivist understanding of history in Balzac criticism.

Dating drafts of a text to insure that the last version is the version being edited, together with preparing notes on Balzac's biography, on how he arrived at the last version, and on what literary and social influences affected his work, is the majority of the effort involved in creating a critical edition.

When preparing the second Pléiade critical edition, traditional scholars edited the final handwritten corrections that Balzac wrote on his volume of the Furne edition before he died. Traditional scholars were the ones choosing which corrections were from the hand of Balzac and therefore which ones justified a transformation from the Furne edition. They therefore created a revised text for the Pléiade collection by incorporating Balzac's handwritten corrections from the version of *La Comédie humaine* printed by Furne, and by relegating in end notes the extracts of earlier versions that traditional scholars found significantly different from the final version, thereby creating a text never even published before—what Knorr Cetina (1999) calls a "technology of representation." This constituted a noticeable difference from the first Pléiade edition.

This bias toward the final version of *La Comédie humaine* derives from one of the main assumptions made by traditional scholars, and is also one of the modernist's main bones of contention. This text, as modernists notice, was never published during Balzac's lifetime. For modernists interested in the genesis and reception of *La Comédie humaine*, first drafts of a novel are as interesting as last drafts. Commenting on this idea in light of the recent debates that the modernists have provoked in the field of genetic studies,[15] a traditional scholar argues why their critical edition of *La Comédie humaine* contains only the last version of the text:

> When you gather the first versions of Balzac's novels to prepare a critical edition, it is very difficult to organize them. [. . .] Balzac starts to write quickly, and then he adds new things when he

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[14] To protect the anonymity of the interviewee, I changed his research specialty.

[15] The new genetic criticism was developed in French academia in the 1980s by modernist scholars willing to analyze early drafts of an *œuvre*, or what they called "foretexts" (*avant-textes*; Grésillon 1994). They label their approach "literary genetic" to differentiate it from traditional philology.

comes back to what he wrote. Each version usually grows bigger. [. . .] But then, it reaches a point where it stops growing. This is the moment when he reached what he wanted to do. This is something that [modernists] who practice what they call the "new genetic studies" do not accept. They say, "Balzac, it's never finished," "no novel is ever finished," or "one edition is just the manuscript of another edition." This is not true, at least not with Balzac. Balzac's writings reach a point of equilibrium. Why? I would like to be sure to have an answer to that. All I can say is that it's not random. Or it's not just because the editor asked him to finish the book. I think these are not the right interpretations. What I think is that he has reached a stage of maturity. When you see a tree growing, it corresponds to the stage of formation for a writer, and when you see the tree producing leaves, but not growing anymore, it corresponds to the moment when a writer has reached his point of maturity.

Like other traditional scholars, this interviewee considers only the final version of Balzac's novels to be "mature" and finished works of art, whereas modernists assume that the moment the writer stops editing his text is random and that other possible drafts could just as well have been written. Even though they disagree with modernists on the teleological character of the literary genesis, traditional scholars think (contra idealist thinkers) that facts and history are important for explaining why the last version is they way it is. This historical positivism, largely shared by traditional scholars, explains why they felt the need to construct this second edition (rather than just using the first edition), and explains the definitive shape of this edition. As traditional scholars argue, without the historical documentation recording the genetical transformation of each of Balzac's novels, one cannot understand their meaning. Hence, each scholar preparing the critical edition incorporated in the second Pléiade some references to earlier versions of *La Comédie humaine* and to the chronology of the changes geared toward the last version. As a traditional interviewee says,

> I think that you cannot skip a historical approach of Balzac's texts if you want to interpret them. You cannot compare what someone has written here and there, if you don't know how both situations differed. You can't even start thinking about it. For instance, in *Louis Lambert*, there are fourteen versions of the same novel. When you read the last version, if you have no clue about how it changed, if you did not know the existence of the

first thirteen versions, you can't understand anything—because his life has changed, his writing has changed. It's impossible to interpret Balzac without knowing all these details. That's why you need critical editions.

From this traditionalist perspective, the history of Balzac's early drafts provides the factual information that the reader needs to understand the canonical version of his text (a goal that is not shared by modernists, who analyze equally the last and other versions of a text). Such documentation lacked from the first edition of *La Comédie humaine* in Pléiade. The second edition thus opened new venues for historically grounded analysis.

This example shows that, as biologists have turned their theoretical assumptions into technical instruments, which they do not question once completed (Latour 1987), traditional scholars have solidified their intuitions that the text improves from draft to draft into a canonical author's edition. In this case, traditional scholars share a "referent-oriented" epistemic culture (Knorr Cetina 1999), wherein the real text corresponds to the the last version. Hence, although traditional scholars intervened on the Balzacian text in practice, they used the chronology of his writings to control their intervention and to construct a system of historical notes, which insures the correspondence between Balzac's real text (the unique edition, printed by Furne, with Balzac's handwritten corrections) and the text edited in Pléiade. Besides, from the 1980s to the late 1990s, not only was this second Pléiade edition the tool that all Balzac scholars used, but also its editing format was transposed to most of the paperback editions that came after its publication. As another traditional interviewee says, "When the Pléiade edition was completed, we understood that if students were to take advantage of it, we shouldn't leave this edition in Pléiade, which is relatively expensive; so the same authors transposed their critical edition in pocket editions in order to transmit their work to students." This shows the stability of the representation of Balzac's text in the second Pléiade edition throughout the years and its influence on the subsequent editions. Far from being constantly revised like the technical objects of high energy physicists (Knorr Cetina 1999), critical editions and their system of correspondence stabilize the canonical representation of a text for many years to come except

if some other scholars try to challenge directly these editions by creating new ones.

DIGITAL EDITIONS AND MODERNIST THEORIES

This section shows that the Pléiade edition prepared by traditional scholars closed specific theoretical venues opened by modernists. Modernists first used this edition in a transparent way when developing semiotic approaches to Balzac's poetics. Although it raised the level of cooperation necessary for completing this study of Balzac's poetics, it did not affect the very possibility of doing it. This edition, however, did preclude against modernist analyses of the genesis and reception of *La Comédie humaine*. This section therefore explains why modernists started editing Balzac's texts with digital media in the 1990s.

Modernists' Interpretation of Balzac's Poetics

From the mid-1970s through the early 1980s, semioticians and socio-critics aimed at analyzing the rise of the historical representation of the novelist in Balzac's texts (and more generally of the modern understanding of the author). They organized a project on Balzac's lexicon of self-designation asking questions such as, Does Balzac consider himself a poet? A novelist? A historian? A philosopher? How does Balzac define these words in relation with one another? How does he present his *ars poetica* (i.e., poetics)? Following a structuralist twist, inspired by Roland Barthes' strictly textual analysis of linguistic signs and by French structuralist Ferdinand de Saussure (1857–1913), semioticians as well as socio-critics did not assume that key words like "novel" and "novelist" have a definitive meaning. Rather, they investigated how Balzac defined their meaning by differentiating them from other possible designations of himself. Their program explicitly challenged the traditional approach based on historically grounded analysis, as the following excerpt from a modernist's personal archives shows:

> Our primary goal is to pay attention to Balzac's text to determine our methodology, to learn how we operate, to associate students with our team as soon as possible, and to determine the steps for our research and our publications. During conversations, diverse orientations appeared. Far from

paralysing us, this diversity only enriched our debates. We listed the dangers to be avoided, in particular: (1) the adoption of a positivist approach, according to which historical knowledge and facts about Balzac's work could be extracted spontaneously from his writings and biography; (2) the illusory adoption of an extratemporal reading, where the conditions of readability of Balzac's writings would be determined once and for all; and (3) the privilege given to strictly narrative and textual perspectives. A strict lexicological analysis is necessary at this stage, but it does not constitute an end in itself. The goal is to question the traditional division of discourses (novels, history, etc.) while mastering one vocabulary of novelistic production.[16]

This programatic statement illustrates a common thread in semiotics, which defines itself contra the historical positivism of traditional scholars. Although it sought to challenge traditional methods, the modernist study of Balzac's poetics could very well be pursued (and was pursued) using the second critical edition in the Pléiade that traditional scholars were preparing. By the time they started the research, modernists indeed had chosen the Pléiade edition as the reference edition for locating the occurrences, which showed that using the Pléiade edition did not originally prevent them from opening new theoretical paths that were supposed to challenge traditional approaches. At the time, their main bone of contention against traditional scholars was against traditional scholars' emphasis on preparing critical editions of canonical writers, and not on the way they edited these texts. As one interviewee, a socio-critic, says,

> We chose Balzac because he was the highest common denominator of many theoretical problems concerning semiotics and Marxism. And Balzac was, relatively speaking, the only writer in the nineteenth century who remained free. Flaubert had all the semioticians working on him, and you cannot "touch" Hugo, because you touch the Republic. [. . .] Balzac had only the specialists of the Sorbonne working on it. These Balzac scholars remained in "Balzacland," and we arrived as if we were disturbing some isolated monks by saying that Mass cannot be celebrated as they used to do. They were just burying Balzac in perfect critical editions.

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[16] First letter to members of the modernist group, 1975.

In contrast to traditional scholars who sought to prepare good critical editions, modernists were willing to approach texts from a structuralist and semiotic standpoint. Modernists used a strategy of distinction (Gieryn 1983; Bourdieu 1984) by which they contrasted their theoretical work on Balzac's poetics with traditional scholars' supposedly un-theoretical work of edition-making—but the modernists used the traditional scholars' critical editions.

Even though using the Pléiade edition did not stop modernists from completing their analysis of Balzac's poetics, it dramatically increased the level of cooperation necessary to complete their research. Their lexicological methodology (i.e., the measuring of occurrences of certain words in Balzac's entire work and the analyzing of those words' linguistic associations) meant that they had to reference all the occurences of the words they chose in *La Comédie humaine*—something that the Pléiade edition could not easily represent. Modernists selected twenty words to map out Balzac's understanding of the author (including "author," "novelist," "novel," "poet," and "historian"). They divided up Balzac's works among different research teams. The project entailed a high level of cooperation and a shortening of the list of words that they could count. They started reviewing all the occurrences of the words by hand (a huge project in itself, covering more than ten thousand pages), and they circulated transcripts and samples of lexical associations and occurrences among the different research teams in Canada, France, the Netherlands, and Israel. From 1975 to 1986, they completed all the preparatory work for their project. Sharing an opposition to traditional methods helped semioticians and socio-critics downplay their differences. Even though socio-critics were more interested than semioticians in historicizing their results, as socio-critics integrated a semiotic approach to literature with the broader historical and cultural critical inquiries initiated by Marxist scholar Lucien Goldmann (1913–1970) and what would be called "post-structuralist" theory in the United States (Vachon and Tournier 1992), semioticians and socio-critics shared a common goal during this early phase: to publish "a Balzacian dictionary on the novel, where each term will be the focus of extended notes, which would show the exten-

sion and diversity of Balzac's use of each term."[17]

Modernists' cooperation, self-surveillance, and self-recording (one aspect of the care of the self identified by Knorr Cetina [1999:61]) were highly fruitful in challenging key traditional assumptions, and literary scholars' efforts to unite around common goals helped them generate new interpretations of Balzac's poetics. After the initial work was done, modernists observed that Balzac scarcely referred to himself as a "novelist," which helped them debunk the traditional idea that a strict division isolates literary genres (novel, poetry, theater, etc.) from other kinds of discourses (history, philosophy). Instead, they found that Balzac preferred to be thought of as an "historien des mœurs,"[18] referring to his project in terms comparable to those of his contemporary Jules Michelet (1798–1874), a famous historian of the French Revolution. Such a conclusion reinforced socio-critics' idea that Balzac should not be viewed from a solely literary perspective. In fact, they argued, Balzac's work was at the intersection of different discourses whose boundaries his writing redefined. As one modernist pointed out during his interview, "Balzac is still one of the examples that I use to illustrate that what we consider now as a pure novel in its contemporary sense is actually a notion that was only commonly accepted in the second half of the nineteenth century, not in the times of Balzac."

Semioticians and socio-critics did not agree, however, on how to present the results of their research in the planned dictionary of Balzac's self-designation. They had originally planned to present their results in a dictionary, which was to be entitled "Fragments of a Novelistic Discourse" after a famous book by Roland Barthes (1977). Yet transcripts from seminars convened by the socio-critics and semioticians in 1985 and 1986 show that they could not reach an agreement on the form of their final product, because socio-critics wanted to pay attention to the chronology of his writings—a historical

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[17] Letter to members of the modernist group, February 1985.

[18] It can be best translated as a "cultural historian," the French word "moeurs" referring to a set of cultural rules that guide definitions of morality.

focus that semioticians found irrelevant for a study in semiotics:

> [A socio-critic scholar] says, I think the only objective we can have now is to finish the dictionary of Balzac's operational terms to describe what constitutes a novel. I propose to call it "Fragments of a Novelistic Discourse." There are three classifications we can adopt: chronological; thematic; by categories of texts [fictional, nonfictional, etc.]. . . . I think the chronological order would be best suited to avoid the impression of extratemporal reading.
>
> [A semiotician responds:] As a semiotician, I would not like to have a chronological order, and I'm not sure a thematic order will be operational.

This quote illustrates that after their decade-long collaboration, differences in the theoretical interests between the two schools emerged, primarily regarding whether or not to historicize their intepretations. Semioticians favored an abstract analysis and presentation of Balzac's *ars poetica*, while the socio-critics wanted to ground their findings in a historical framework, attentive to the way his prose and the organization of his *œuvre* changed over time, during its genesis as well as its reception. The dispute resulted in the cancellation of the dictionary project, and individual scholars published their results separately, thereby aborting future cooperation.

SOCIO-CRITICISM AND DIGITAL EDITIONS

This last subsection shows that socio-critics had to construct new technical instruments and challenge the intrinsic architecture of the Pléiade edition of *La Comédie humaine* prepared by traditional scholars to further their theoretical program. Indeed, after this modernist project ended, socio-critics wanted to pursue a historical analysis, surveying Balzac's use of other terms. As a socio-critic interviewee said, after they showed that Balzac considered himself a cultural historian, the next step was to analyse his work "as one of a historian," researching which historical turning points were key to his narrative (such as Balzac's narrative of the Restoration and of the French Bourgeois revolutions). Socio-critics did not want to gather facts about Balzac's historical background; rather, they wanted to show how Balzac's narrative provided his contemporary historians with a new way to describe how history unfolds—a program close to postmodern studies championed in the United States by schol-

ars such as Clifford Geertz. The semioticians, on the other hand, had little interest in the type of analysis that the socio-critics had in mind. When reflecting back to the mid-1980s, a semiotician interviewee said that "most of the semioticians in the group became less interested when [socio-critics] became more interested by the questions asked by historians [as] I think their shift departed from the theoretical questions of the beginning." As a result, past lines of opposition between traditionalists and modernists reappeared between the semioticians and semioticians as well as between the semioticians and sociocritics. This opposition occurred when the sociocritics reintroduced a concern for the historicity of Balzac's texts and their genesis. This illustrates a common phenomena in intellectual dynamics, which appear when winning factions in controversies split along the very lines of demarcation that united them in past debates—a phenomena discussed at length by Abbott (2001) with examples in sociology.[19]

Confronted with a lack of cooperation from their colleagues in semiotics, socio-critics found an able substitute in the new digital technologies that started to appear on the market in the 1990s. Socio-critics thought that building a CD-ROM edition of *La Comédie humaine* would be the way to generate new interpretations on "Balzac-as-a-historian," as one of the titles of their conferences suggests. The CD-ROM built with Acamedia publishers (Balzac [1842–1848] 1999) gave socio-critics a redimensionalization of Balzac's text that they needed to further their theoretical program. As a scholar of socio-criticism involved in the two projects said,

> The final form for the project [on Balzac's poetics] was not the ideal one. We planned to do a dictionary to collect the information. We should have planned a computerized version, but it didn't exist. There were some highly textualist scholars among

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[19] The re-parametrization of new conflicts along past shifting lines of division explains the limited number of potential schools with which Balzac scholars self-identify, resulting in what Collins (1998: 191) calls the "law of small of numbers" of intellectual positions in humanistic fields, which "holds that the attention space allows three to six distinctive positions" as the limit within which a field can split. On the determinants of scholars' self-concept in the humanities, see also Gross (2002).

[modernist] scholars who were not interested any-more in this project because they thought their articles on Balzac's poetics were sufficient. I think we had more possibilities to open with this edition. There's a clear affiliation between the two [projects on lexicology and the CD-ROM]. The failure of the first one lead to the second one, and it was really productive for that reason. Because of it, we rejected pure textualism, which was our original sin. . . . This explains why we did that CD-ROM—in order to use Balzac as a data-bank. Now with the CD-ROM, socio-criticism, and lexicological traces, it's ten times more efficient. You can build your interpretation in total freedom. The lexical field is open to you in one second, and you can have all your hypotheses tested at the same time.

The search engine allows scholars to explore every term that illustrated how Balzac wrote about history to analyze more thoroughly Balzac as a historian, not just a novelist. In two conferences that I attended on "Balzac-Historian" and "Balzac's Conception of History," the socio-critics presented their results using this new digital edition of *La Comédie humaine*. Operating a simple word search with the CD-ROM redimensionalizes Balzac's text according to a lexicological dimension, favored by socio-critics. Having this digital edition therefore allowed socio-critics to substitute the semioticians' concern for his "poetics" (his self-presentation as a poet, novelist, etc.) with a concern for his conception of history (his historical references, the way in which he reinvents a chronology and a tradition, etc.).

Socio-critics' interests in building this new digital edition also stemmed from problems encountered with the Pléiade edition and more particularly with traditional scholars' choice to edit the last version of *La Comédie humaine*. When building their digital edition with Acamedia, the modernists also changed the text itself and chose to use the Furne version (the penultimate version) in their CD-ROM, and not the last version like in Pléiade. As one socio-critic explains,

The challenge [of the Acamedia] CD-ROM was to invent a new way of doing editions. Do we still edit texts like it has always been done, or do we adapt the tools that we built theoretically to editions? The Acamedia CD-ROM corresponds, for instance, to an attempt to do that. We edited the penultimate version of Balzac's text, the only one his contemporaries saw. It corresponds to a way to create a multi-vocal Balzac, an idea we tried to theorize,

and to pursue a historical interest in Balzac's reception.

By analyzing the text that Balzac's contemporaries saw in print, socio-critics could better research the reception of Balzac in his own time, analyzing how his contemporaries (not only novelists but also historians, journalists, etc.) were under his influence, and how this influence can be traced back to his novels. Modernists were not concerned with editing the real text closest to Balzac's intentions (which is the referent of the Pléiade edition for traditional scholars), but rather with editing the text whose signs circulated during the period of time in which they have a special interest. Using the Pléiade edition for such a research project would be counterfactual, as the text it relies on was edited only during the 1970s. The modernists' digital edition debunked the fixed vision that the Pléiade edition bestows upon Balzac's writings. It thus helped challenge the accepted idea that the last version of Balzac's texts fixes the "conditions of readability once and for all," or called into question the "illusory adoption of an extratemporal reading"—one of the modernists' projects.

This challenge against traditional assumptions inevitably lead socio-critics to reenact old battles between the traditionalists and modernists. Even though traditional scholars applauded socio-critics' move away from pure theory and toward a new concern for history and edition-making, they strongly opposed socio-critics' consideration of this "new" text of Balzac as equivalent to the one in the Pléiade. As one of the traditional scholars said about this new digital edition,

I could only applaud when [modernists] started editing Balzac's work. Editing Balzac in a digital format is a great idea, and they learned a lot in the process. But there is a fatal flaw, which makes the product more interesting for the broad public than for scholars. You know, they stumbled upon a lot of problems, and one is that they did not edit the Pléiade text. They did not edit the last version, which is a major problem if you do some research, because then you loose the correspondence between pages in the Pléiade and in this CD-ROM.

For traditional scholars, the Pléiade edition, which fixes the contemporary reading of Balzac in the late twentieth century, is still the best edition. For them, losing the correspondence between the edited text and the supposedly real

text of Balzac is a major drawback that can only threaten the unity of the field. Their criticism parallels the one of scholars who, after the Renaissance, called for the normalization of textual practices when faced with the advent of the printing press (Compagnon 1979; Certeau 1984; Chartier 1994). Indeed, during the Renaissance period, debates polarized scholars over whether printed editions of the Bible would betray God's words and would further heretic interpretations (Chartier 1996:142).[20] In the same vein, traditional Balzac scholars fear that the use of digital editions will fragment the field and allow free scholarly interpretations of Balzac devoid of historical and genetic concerns. Besides, for them, blurring the boundary between the texts that are part of France's literary heritage and the texts that tell its history, as the socio-critics attempt to do, is heresy.

The internal characteristics of the Pléiade edition prepared by traditional scholars raised other difficulties for socio-critics. Socio-critics' turn away from semiotics to reception studies was associated with their new interest in the genesis of *La Comédie humaine*. This new interest was part of a broader attention in French literary criticism for the study of genesis of texts, called "new genetic criticism," which "has been greeted warmly [among French modernists], with an an enthusiasm that owes much to the growing disaffection with the sweeping literary theories and their aims of generalization that dominated textual studies during the 1970s and 1980s" (Contat, Hollier, and Neefs 1996:2). The new genetic criticism differs significantly from traditional scholarship. Traditional scholars established how the last version of a text differs from other versions, assuming that the last version corresponds to the real text, intended by the author. Geneticists challenged the championing of the final, finished product that is central to traditional criticism. "Genetic criticism is contemporaneous with an aesthetic of the possible. . . . Whereas traditional philology did

everything in its power to reinforce and intensify the quasi-ontological break between the work and its antecedents, genetic criticism attempts, on the contrary, to reinscribe the work in the series of variations, in the space of its possibilities" (Contat et al. 1996:2). Yet the format of the Pléiade made the task of socio-critics interested in the genesis of *La Comédie humaine* impossible. As one socio-critic said,

> In my dissertation, there's just one little part of genetics, because in Balzac's text, there are a lot of versions, and I did my dissertation starting with the alternatives gathered in the Pléiade, which is a fault from the genetic point of view. This project is not at all exhaustive. It is a choice of alternatives, which corresponds only to a tenth of the manuscripts. I think the reasons why genetics were not developed enough in Balzac criticism [until the mid-1990s] are not only institutional, for exactly this reason. It [the Pléiade edition] is a false genetic edition, which gives you the impression of doing genetics, whereas you aren't.

Although traditional scholars had already deciphered the last handwritten notes of Balzac when they completed their Pléiade edition, the format of the Pléiade made these notes unexploitable from the point of view of socio-critics interested in the genesis of *La Comédie humaine*. In the Pléiade, manuscript corrections are presented in a way that was meant only to help better understand the last version of *La Comédie humaine*, not in a way to help scholars reevaluate theories about the movement of creation. For instance, the Pléiade edition cannot be used for the study of an author's corrections, which is the basis of literary genetics. Traditional scholars incorporated Balzac's last handwritten corrections into the very text of the Pléiade collection so that the reader would not distinguish which words are from the penultimate version and which are from Balzac's last handwritten corrections. The Pléiade edition thus raised problems that hindered the development of a new genetics in Balzac criticism— as its construction stemmed from the ideas that the last version of a text is the real canonical text, that it stems from a process of maturation, and so forth.

Prepared in the mid-1990s by socio-critics, a second digital edition (Champion, in progress) further challenged traditional scholars' choice to edit Balzac's last corrections into the Pleiade edition. The Champion digital edition intended to substantiate the new modernist approach

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[20] This is not to say that cultural changes (the Puritan revolution in this case) are purely driven by technological changes, unlike what McLuhan (1962) has argued—see Eisenstein (1971). Rather, technological changes reorder existing trends in fields of knowledge, as Star and Greisemer (1989) have shown.

developed by geneticists and their new definition of texts. Its construction illustrated the socio-critics' attempts to impose a new genetic definition of the texts worth studying and a challenge against what traditional scholars considered as a canonical text. As a socio-critic explains,

> The [Champion] CD-ROM will make it possible to confront the two versions page-to-page: the page of Furne [the penultimate version of Balzac's text edited in the Academia edition] and the corrected page. Furne presents the [last] handwritten corrections of Balzac. The CD-ROM gives the printed text of Furne in text mode and the photography of corrected Furne in image mode. On the screen, one can thus have the corrected page and the uncorrected page. You can simultaneously see the two versions. To read each of the versions of one text [edited in the CD-ROM] is completely different from reading the selection of alternatives collected in the Pléiade edition, because you can simultaneously see the two versions. From this point of view, it is obviously a great progress.

This second digital edition thus reflects new conceptions and an a-teleological assumption about literary creation—an assumption that differentiates new genetic criticism from traditional genetic criticism. Readers of the Champion CD-ROM will have access to either the penultimate or the ultimate version, with no hierarchy between the two. Whereas Pléiade editions could not be used for the study of corrections, which is the basis of literary genetics, this digital edition gives easy access to the text as it is annotated with Balzac's last handwritten corrections. Like the other digital edition, this second CD-ROM reinforces the premium that socio-critics put on studying the penultimate text, but in this CD-ROM edition, the reader can easily study the changes Balzac made to the last version. That said, the reader can also choose to read each version of the same text in a linear fashion. This genetic digital edition can also serve as a basis for including other versions, once they are deciphered. So far, the CD-ROM is still in progress, and might stay at this stage for a long time as the amount of work involved is gigantic. In a sense, this liminal status (it is neither a finished product, nor a failed project) illustrates what Knorr Cetina (1997:10) says about modern technologies, which are "unready-to-hand, unavailable and problematic" and "simultaneously things-to-be-used and things-in-a-process-of-transformation." The construc-

tion of the digital edition constitutes, in itself, the space where socio-critics learn how to read Balzac's versions of other *La Comédie humaine*s, and how to analyze their genesis. The construction of this CD-ROM reorders the field by gathering the modernists interested in new genetic criticism around the construction of a common artifact, which undergoes a perpetual transformation.

Such reconfiguration of the field by a technical instrument led to further dichotomizing of past lines of opposition, along what Abbott (2001) called "fractal cycles." In this case, it set practitioners of the care of the self, for whom instruments are also objects of knowledge in perpetual transformation, against semioticians for whom the technical instruments are just ready-to-hand and transparent means to accomplish theoretical ends. For instance, one Ph.D. candidate, who was under the supervision of the semioticians and yet was interested in genetic criticism, said that,

> There's a bunch of Ph.D. candidates who do genetic studies. But the amount of work is so huge to edit one text like *Illusions Perdues* that they only transcribe texts, although the aim of genetics is to follow the movement of creation and provide new interpretations. So they only do attributions of texts: They identify some texts as being from Balzac or not. I'm not interested in that. I'm more oriented toward theory.

Like this interviewee, other semioticians (even some interested in genetic criticism) downplay the necessity of adding a new technical object to the Pléiade edition. For instance, one says,

> When [the traditional scholars] had finished the Pléiade edition, they had worked a lot on manuscripts. They had transcribed almost everything; they had deciphered everything. It's a huge [project], but one which I would qualify as "semi-geneticist." That's one thing that a geneticist must do, meaning that a geneticist works on manuscripts, and he has to decipher them, to classify them, to date them. But then, he has to interpret them. On the three first aspects, [traditional scholars] were perfect, and the Pléiade is extremely good. But, then, they did not exploit the data, they simply analyzed it according to the traditional assumptions of critical editions.

For semioticians, constructing new technologies of representation of Balzac's texts looked like a backlash toward more traditional practices of edition-making. On the contrary, by developing artifacts, which they construct with a particu-

lar attention to the historicity of the different versions of *La Comédie humaine*, socio-critics have furthered their interest in historicizing their analyses of Balzac's poetics. It shows how different epistemic cultures (Knorr Cetina 1999) drove away past allies in Balzac criticism.

CONCLUSION

The case of Balzac criticism exemplifies how technical instruments can transform textual representation, and shows why this matters in the development of interpretive theories in the humanities. Modernist Balzac scholars, who derided the traditional focus on creating editions of Balzac's work, began to create digital editions to overcome the defection of semioticians from their research groups as well as the bias against their perspective, which is institutionalized in the Pléiade edition of Balzac. It also shows that traditional scholars' use of technical instruments is embedded within a referent-oriented epistemic culture, wherein knowledge is supposed to be grounded on a technology of representation that displays the real text of Balzac. In contrast, socio-critics' use of technical instruments is embedded within a reflexive epistemic culture, wherein knowledge is supposed to be generated by a continuous care of the self. This study develops further the burgeoning literature on epistemic cultures in the natural sciences (Galison and Stump 1996; Knorr Cetina 1999) by analyzing how different epistemic cultures drive the dynamics of knowledge production in intellectual fields.

This case study also shows that sociologists cannot reduce controversies in the humanities to oppositions between theories, hidden political agendas, or cultural representations of academic worth. Debates move along technical lines, as controversial theories become substantiated in the technical instruments produced by scholars. "Bringing objects back in," the perspective of sociologists of knowledge in the more interpretive disciplines, is now an essential move (Hennion 1993; Chartier 1997). If sociologists fail to understand that technical instruments can convey very different and controversial meanings, many lasting controversies will be misinterpreted by sociologists of knowledge. For instance, when analyzing how the discipline of literature has evolved in France compared to the United States, Duell (2000:104)

asserts that "in the process of entering the mainstream of French literary studies, modernist scholars appear to have . . . increasingly adopted the traditional criteria of the discipline" because they continued specializing on canonical dead white male authors and because they started editing their works. In contrast, this study shows that French scholars have raised the theoretical debates that stirred academia in the 1970s to another level by debating what editions should be considered classical among the writings of canonical authors. This focus on technical instruments and epistemic cultures complements studies of the social sciences and the humanities, which stress the significance of institutional factors for dynamics of knowledge-production—see Guillory (1993) and Small (1999) for institutional studies of canon formation. Future studies should include this concern for epistemic cultures along with a systematic analysis of these other dimensions of intellectual activity.

This paper also complements other perspectives in the sociology of literature. It shows that the multi-vocality of canonical writers does not only come from the cultural conceptions defended by different groups of interpreters, as authors usually argue (see Griswold 1987, 1993), but also from the technical instruments that they build along with their theories. To the extent that the editions used to study such canonical authors change over time and hold different theoretical and methodological meanings, sociologists of literature cannot avoid paying attention to the role that these technical devices play in the genesis of interpretations. Most studies of reception overlook the fact that reading a printed book is a qualitatively different experience than reading it in a digital format where many different editions are hyperlinked together. Focusing on the technical instruments constructed by interpreters of the canon in different disciplines is an essential move for sociologists of knowledge, who are not only interested in assessing whether the focus on classics signals intellectual stagnation (Collins 1992:75–76, 1998), but also in understanding how knowledge producers generate new ideas from old texts.

Grégoire Mallard *is a Ph.D. candidate in sociology at Princeton University and at ENPC (LATTS). His dissertation focuses on the forms of governmental rationality constructed by U.S. experts in national security and nuclear policies, and on their influence*

on policies of economic and scientific development in the developing world. His past research includes a project with Michèle Lamont and Joshua Guetzkow on epistemological styles in the social sciences and the humanities. He is completing a special volume titled "Between Hegemony and Resistance: The Globalization of the Sciences," edited in Sociologie du Travail *(forthcoming June 2006), with Catherine Paradeise and Ashveen Peerbaye.*

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