A Brief Parallel Chronology of Cognitive Science and Literary Theory

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Back in 2005 a (now dormant) group blog called The Valve held a multi-author symposium on an anthology entitled *Theory's Empire*.[1]

> Daphne Patai, Wilfrido Corral, eds. *Theory's Empire: And Anthology of Dissent*. Columbia University Press, 2005.

As the title suggests, the articles were skeptical about what had by then become the most visible set of approaches to academic literary criticism. While I didn't contribute any posts to the symposium, I made extensive comments. I was (often considerably) older than most of the people who made posts and found myself, for the first time, playing the role of an old-hand telling the young folks what it was like back in the day.

This chronology started its life as a long comment to one of the posts, which I subsequently rescued from comment-oblivion by turning into a post[2] once I became a regular contributor to The Valve. While I have revised the material a bit for HEX01, this document *does not* reflect extensive scholarship on my part, no digging in the historical archives, etc. Rather, it is an off-the-top-of-my-head sketch of the multifaceted intellectual milieu in which I have lived much of my intellectual life.

I take 1957 as a basic reference point. That's when Northrop Frye published his *Anatomy of Criticism* and that's when Noam Chomsky published *Syntactic Structures*. 1957 is also when the Russians launched Sputnik, the first artificial satellite to circle the globe. I was 10 years old at the time and still remember going out in the yard at night with my father. He pointed to a moving point of light in the sky and told me that was Sputnik. That's the first world-historical event that I remember.

The Cold War was in full swing at that time and Sputnik triggered off a deep wave of tech anxiety and tech envy in America. One consequence was that more federal money went into the university system. There was a parallel move to get more high school students into college. So we see an expansion of college and university enrollments through the 60s and an expansion of the professorate to accommodate. Cognitive science (especially its AI side) and, perhaps to a lesser extent, Theory rode in on this wave. By the time the federal money began contracting in the early 70s an initial generation of cognitivists and Theorists was becoming tenured in, and others were in the graduate school and junior faculty pipe-line. Of course, the colleges and universities couldn't simply halt the expansion once the money began to dry up. These things have inertia.

We may take cognitive science for granted now, but the fact is that there are precious few cognitive science departments. There are some, but mostly we've got interdisciplinary programs pulling faculty from various departments. These programs grant PhDs by proxy; you get your degree in a traditional department but are entitled to wear a cog sci gold seal on your forehead. As Jerry Fodor remarked somewhere (I forget where), most cognitive psychologists don't practice cognitive science. They do something else, something that most likely was in place before cognitive science came on the scene.

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Let's look at the 1950s:

1948: Norbert Wiener, *Cybernetics*
1949: Warren Weaver, Memorandum on Translation
Claude Shannon and Warren Weaver, The Mathematical Theory of Information, *Bell System Technical Journal*
1953: Double helix model of DNA published in *Nature* (Watson and Crick)
1954: Public demonstration of Georgetown-IBM machine translation system
1955: Claude Lévi-Strauss, “The Structural Study of Myth”
1956: The Dartmouth Summer Program on Artificial Intelligence (coined the term “artificial intelligence”);
George Miller, “The Magical Number Seven, Plus or Minus Two”
1957: Noam Chomsky, *Syntactic Structures*
Northrop Frye, *Anatomy of Criticism*
Mythologies (Barthes)
1958: Claude Lévi-Strauss, *Anthropologie Structurale*
John von Neumann, *The Computer and the Brain*
1959: Chomsky's review of Skinner's *Verbal Behavior*
1961: Michael Foucault, *Histoire de la Folie*

We can conveniently mark the coming-to-visibility of high theory with the 1966 structuralism conference at The Johns Hopkins University in Baltimore and the subsequent publication of its proceedings (my modest contribution is on pp. 243-244):

> Richard Macksey and Eugenio Donato, eds. (1970). *The Languages of Criticism and the Sciences of Man*.

That same year, 1966, saw the release of the (in)famous ALPAC Report (Automatic Language Processing Advisory Committee), which resulted in the loss of government funding for work in machine translation.

The following two volumes can serve to mark the unveiling of cognitive science as a specific, if diffuse, interdisciplinary activity:

> Marvin Minsky, ed. (1968) *Semantic Information Processing*, Cambridge, Mass.
> Endel Tulving and Wayne Donaldson, eds. (1972) *Organization of Memory*.

It was about that time, in 1973, that Christopher Longuet-Higgins[3] coined the term “cognitive science”.[4]

This is when things, in both arenas, really started to take hold and move out. Note that there was a real, though failed, attempt on the part of literature to hook up with cognitive science through Chomsky (stylistics and Jonathan Culler's early structuralism: *Structuralist Poetics*, 1975). Terms such as “competence” and “deep structure” gained some purchase but, for better or worse, the substance of Chomsky's (often obscure) thought remained safely in linguistics. There is also a story grammar literature that developed mostly in the 1970s and 1980s and is beholden to both strands of thinking. For that matter, it strikes me that Sheldon Kline did a computer simulation of Lévi-Strauss's myth theory (1976)[5] that, in fact, looked more like Propp. I read a tech report on this sometime in the mid-1970s.

[As for viciousness, the inter-school arguments by and around Chomsky are as bitter as anything in and around Theory. The rancor continues to this day.]

It seems to me that by the late 70s and early 80s the main ideas were on the table in both camps. Consolidation was setting in. The early 80s also saw an attempt to commercialize AI technology, but that went bust by 1985 or so and Roger Schank, among others, began talking about AI winter. Two benchmarks:

> Stanley Fish (1980) *Is There a Text in this Class?*

George Lakoff and Mark Johnson (1980) *Metaphors We Live By.*

Fish is a well-known phenomenon, so I'll leave him alone. But Lakoff deserves a remark or two. He was an early student of Chomsky's who, along with James McCawley, Haj Ross, and others, developed something called generative semantics and thereby precipitated a nasty war within Chomskydom (see *The Linguistics Wars* by Randy Allen Harris). While generative semantics is still mostly syntax, the metaphor book is deep in semantic territory, which had pretty much been forbidden to linguists by Leonard Bloomfield, a ban Chomsky was happy to reinforce. Lakoff and Johnson see *Metaphors* (and associated work) as marking a second generation cognitive science, one that emphasizes embodied cognition. From my (biased) POV the lit crit manifestation this 2nd generation looks a lot like New Criticism with a new set of tropes and a modest interest in laboratory experimentation.

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Two more reference points: In 1986 J. Hillis Miller was president of the MLA and thus delivered the presidential address. He complained at that time about the decline of interest in deconstruction; the address was published in the May 1987 issue of *PMLA*. At some point the word "deconstruction" drifted away from the meaning given it by Jacques Derrida, where it meant a fairly specific way of examining a text by turning it back on itself, and simply came to mean something like 'criticize by exposing hidden assumptions'. I don't really know just when this happened, but perhaps it was the middle 80s.

Meanwhile, the 1984 meeting of the American Association for Artificial Intelligence had a panel discussion on "The Dark Ages of AI." This appeared in *AI Magazine* for the fall on 1985. The field was running low on new ideas and the business community was getting stale about AI's commercial promise.

I don't know what Chomsky & Co. were up to at that time.

In the subsequent decade computational linguistics and artificial intelligence moved away from the 'classical' approach of symbolic computing and adopted approaches based on statistical techniques, learning, and neural networks. Those techniques dominate the field today.

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As far as I know there really isn't anything in cognitive science that's parallel to *Theory's Empire*. That is in part because these two intellectual areas are organized along different lines, with different

publication habits and pedagogical needs. But I'll list three anthology volumes:

R. Núñez and W. J. Freeman,eds. (1999). *Reclaiming Cognition.*
Port, R. F. and T. van Gelder, Eds. (1995). *Mind as Motion: Explorations in the Dynamics of Cognition.*
J. Petitot, F. J. Varela, B. Pachoud and J.-M. Roy, eds. (1999) *Issues in Contemporary Phenomenology and Cognitive Science.*

These volumes all argue that the "classical" cognitive science has failed and we need a more dynamic approach, one that's more realistic about the nervous system and, incidentally, one that's more friendly with the continental tradition in philosophy. Walter Freeman, in particular, has been pursuing a rapprochement with Derrida.

My quick and dirty reading of this intellectual history is that it has been driven by ideas that began crystallizing during the 1950s. Those ideas have now given up their vitality. There's nothing new to be gained from them. We stand in need of fundamentally new starting points. Just what they might be . . .

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You might want to check out a fascinating article: Bernard Dionysius Geoghegan, "From Information Theory to French Theory: Jakobson, Lévi-Strauss, and the Cybernetic Apparatus," *Critical Inquiry*, Fall 2011.[7] He looks at the period during and immediately after World War II when Jakobson, Lévi-Strauss and Lacan picked up ideas about information theory and cybernetics from American thinkers at MIT and Bell Labs.

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[1] Symposium on *Theory's Empire*, The Valve, http://www.thevalve.org/go/valve/archive_asc/C41

[2] For the Historical Record: Cog Sci and Lit Theory, A Chronology, The Valve, http://www.thevalve.org/go/valve/article/for_the_historical_record_cog_sci_and_lit_theory_a_chronology/

[3] Christopher Longuet-Higgins, Wikipedia, http://en.wikipedia.org/wiki/H._Christopher_Longuet-Higgins

[4] Cognitive Science, Wikipedia, http://en.wikipedia.org/wiki/Cognitive_science

[5] Klein, S., Aeschliman, Applebaum, Balsisger, Curtis, Foster, Kalish, Kamin, Lee & Price 1976. Simulation d'hypothèses émisés par Propp et Lévi-Strauss en utilisant un système de simulation meta-symbolique. *Informatique et Sciences Humaines*, No. 28, pp. 63-133, Mars. http://pages.cs.wisc.edu/~sklein/Simulation-Meta-Symbolique%20d'Hypotheses-Propp%20&%20Levi-Strauss.pdf

[6] Yeah, I know. That's rather vague. But it'll have to do. This isn't a memo on literary theory. It's a quick and dirty chronology. There's a lot of relevant material on the web, but this recent interview with J. Hillis Miller might be useful. Read as you will, or search, on the term. 'You see you ask an innocent question and you've got a long answer', *Australian Humanities Review*, Issue 56, May 2014, http://www.australianhumanitiesreview.org/archive/Issue-May-2014/miller.html

[7] You should be able to get a copy from Geoghegan's publications page, http://bernardg.com/publications