

WE HAVE NEVER BEEN POSITIVIST¹

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Abstract: The specter of positivism haunts critical urban studies, distracting us from the possibilities of creative, rigorous, critical engaged activist scholarship beyond the obsolete dichotomies of quantitative/qualitative methodologies and positivist/postpositivist epistemologies. Yet a genealogy of positivism shows that the movement was never as philosophically coherent, nor as politically conservative, nor as well-defined a research program as portrayed in our intellectual histories: we have never been positivist. The ‘post’ in post-positivist urban studies cannot be reduced to positivism’s antithesis, but instead refers to the variegated critical ontologies and epistemologies always discomfited by a positivism that never was. Creating space to move beyond the inherited myths of positivist and quantitative urban scholarship requires abandoning either/or differentiations in favor of the both/and possibilities of engaged pluralism. [Key words: positivism, post-positivism, epistemology, quantitative methods, Vienna Circle]

¹ With apologies to Latour (1993).

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Two ‘urban myths’ about positivism circulate within urban studies and geography: 1) there once was a coherent, politically *status-quo* oriented Anglophone positivist research program in urban studies, and 2) quantitative urban scholarship is positivist and alien to post-positivist, critical urban studies. In this brief essay I seek to deconstruct these myths, continuing to clear space for critical post-positivist urban research that includes certain kinds of quantitative analysis.

THE FIRST MYTH

Attempts to identify (and castigate) a politically conservative positivist research program in Anglophone urban research run up against several challenges. The first is definitional: Positivism resists essentialization into a single set of principles, let alone practices. The second is discursive and practical: Even in the heyday of spatial science, it was hard to find urban researchers calling themselves positivist, and research practices departed from the positivist norms set out by post-1945 social science philosophers.

Positivism was coined by the French philosopher Auguste Comte, who began to teach a course on ‘positive philosophy’ in Paris in 1826 (Shaikh, 1978). His was a political philosophy, not a philosophy of science, which *inter alia* presented ‘Sociology’ as the ultimate science. He saw positivism as forming the basis for a positive program of social change influenced by the 1848 revolution, in which an alliance of women and workers were to play a central role, guided by a priestly class of scientists — religion thereby envisioned as an application of science (Kansky, 1963; Gregory, 1978).

This is not the version of positivism mobilized in the post-1945 Anglophone world (Hempel & Oppenheim, 1948). The latter stemmed from the *Wiener Kreis* (Vienna Circle) of the 1920s, which was a much more austere *logical* positivism. Their 1929 manifesto (Foley, 2000) distinguished its “empiricism and positivism” from Comte’s “more biological-psychological” version, highlighting two features. “*First* it is *empiricist and positivist*: there is knowledge only from experience, which rests on what is immediately given. This sets the limits for the content of legitimate science. *Second*, the scientific world-conception is marked by application of a certain method, namely *logical analysis*.” (1929 manifesto as quoted in Wolters, 1999, p. 203). In short, the Vienna Circle realigned positivism with the ontology of empiricism, with the vision of also discovering logically incontrovertible explanations (analytic statements) for what humans observe and experience (synthetic statements).

Vienna Circle logical empiricism is what Helen Longino calls a local epistemology, not only philosophically but also geographically (Livingstone, 2000; Longino, 2002).

Philosophically, Vienna Circle modernism advocated a revolution that would put philosophy in the service of science, banning metaphysics and ethics as meaningless forms of expression. It sought to connect analytical statements argued to be true on their own terms (logic and mathematics) with synthetic statements about the world as experienced, with the goal of explaining the latter in terms of the iron-clad foundations of the former.

The Vienna School’s positivism is hard to pin down as such. First, its members rarely used the term: “‘Positivist’...was usually applied by opponents of various doctrines. It was used by some of the Viennese logical empiricists...but generally with caution and in stressing...differences [from] 19th century positivists” (Creath, 2011). Beyond this, ongoing internal differences of opinion as to what is meant by logical empiricism were never resolved

into a single canonical approach. Indeed, many of the criticisms subsequently leveled at the Vienna Circle by critics of logical positivism were already intensely debated among its members and fellow travelers. For example, fellow-traveler Karl Popper (1959) made the compelling argument — fatal to a logical positivist epistemology — that facts are theory-laden.

The Vienna Circle's modernist project emerged in the liminal spaces of late- and post-imperial Vienna, the metropolis of a dissipating autocratic and Catholic regime overseeing a sprawling multi-ethnic Habsburg empire. *Fin-de-siècle* Vienna was the *genius loci* for an inter-related cluster of social, artistic and intellectual modernist movements prosecuting a new enlightenment (Bellofiore, 2012). Secessionist art (Klimt and Schiele), twelve-tone music (Schönberg), minimalist architecture (Loos), Austrian economics (Menger and von Mises) and the Vienna Circle co-evolved with an emergent Red Vienna. This post-imperial socialist urban regime designed perhaps the most ambitious public housing project anywhere, for Viennese workers. Red Vienna survived civil war in the 1920s to be ousted in 1934, but its citizens re-elected a socialist mayor after independence and the metropolis has remained in socialist and social democratic hands ever since. Members of the Vienna Circle were deeply politically involved, forming right and left wing cliques. Its most influential left-wing member, Otto Neurath, is known for innovative visualizations, seeking to make statistical data accessible to the masses. But he also was active in debates about planning socialist Vienna, advocating what he termed 'gypsy urbanism'. Arguing against the dominant philosophy of housing workers' families in large apartment blocks such as Vienna's Karl-Marx-Hof,³ Neurath promoted the alternative urban lifestyle of Vienna's *wilde Siedlungen* (informal housing), founding the "Hauptverband des Siedlungs- und Kleingartenwesens" (Central Association for Settlement and Allotment

³ See <http://www.viennadirect.com/sights/marx.php>

Garden Living). As this illustrates (Faludi, 1989), left wing Vienna Circle logical empiricism/positivism advocated their science as the key to emancipating Austria-Hungary from its Habsburg shadows (reminiscent of Marx's view of science as an emancipatory tool).

With the rise of Nazism and the 1938 Austrian *Anschluss*, the Vienna Circle took wing. The vast majority of the Vienna Circle, and its kindred Berlin Society for Scientific Philosophy, (many Jewish) dispersed to create new nodes in the UK and the US. Its influence thereby expanded geographically and philosophically. It not only occupied core Anglophone academic locales like Cambridge UK (where Ludwig Wittgenstein had pioneered a Viennese connection and the logician Bertrand Russell was a sympathetic figure), but also reached such places as Minneapolis and Iowa City where it intersected with Geography. The post-1945 US functioned as a particularly productive context for promulgating positivist social science. The successful deployment of quantitative social science for the war effort, particularly operations research, provided convincing evidence in favor of social engineering. There was a particular desire, in the wake of Nazism's use of geopolitics and central place theory (Barnes and Minca, forthcoming), to make social science apolitical, and logical empiricism/positivism was passionately presented as 'just the facts.' Indeed, in this spirit the Ford Foundation funded Stanford's Center for Advanced Study in the Social and Behavioral Sciences (1954), catalyzing similar social science institutes in former Nazi-occupied Europe: In Vienna (1963), Bielefeld, GDR (1968) and Wassenaar, the Netherlands (1970) (Smith and Doel, 2011). This was part of the Ford Foundation's attempts to solidify a democratic capitalist western Europe after Nazism and in the face of Soviet communism (Amin and Graham, 1998). As part of this efflorescence, Carl Hempel's (1965) *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science* became a canonical text for the new Anglophone apolitical social sciences. Hempel — a

former member of the Berlin Society for Scientific Philosophy (the Vienna Circle's German partner) — fled Germany in 1934 to work as Rudolph Carnap's assistant at the University of Chicago. In the same year, US geography made its claim to be such a science (Ackerman, 1965).

Yet as this popularization of a logical empiricist social science proceeded, its core philosophical principles — as advanced most influentially by Carnap — became increasingly indefensible. By the late 1960s, John Passmore (1966: 57) could conclude: "Logical positivism, then, is dead, or as dead as a philosophical movement ever becomes." Analytic and synthetic statements cannot be separated, as the latter are always theory-laden, and even if they were separable the truth or falsity of logical/analytical statements cannot necessarily be independently determined (Gödel, 1931; Popper, 1959; Garegnani, 1966; Pasinetti, 1966; Kliman, 2006).⁴ By this point the term logical positivism had been largely replaced by logical empiricism, but Passmore equated the two (as others have since, Creath, 2011).

But if logical empiricism was dead, it was far from buried.⁵ Contemporary philosophical debates still echo to its claims (Garegnani, 1966; Kliman, 2006). And its demise in philosophy coincided with a broad promulgation in a post-1945 Anglophone Geography keen to prove its scientific mettle.

Although urban geographers took up Hempel's dictum in the name of science — influenced by Berry and Garrison's (1958) work on central place theory and Bunge's (1965)

⁴ In *Wittgenstein's Poker* Edmonds and Eidinow (2012) amusingly narrate logical empiricism's Achilles heel: the world's leading analytical epistemologists, gathered in Russell's room in Cambridge proved unable to agree on whether they observed Wittgenstein threaten Karl Popper with a poker.

⁵ It may seem anachronistic in today's digital/cyborg world, but philosophers have continued to debate whether empiricism should limit 'experience' to what humans can directly apprehend with their sensory organs, and whether and how it can be extended beyond this (United Nations Centre for Human Settlements, 2001).

Scientific Geography — locating positivism/empiricism within urban geography remains elusive. The take-up of Hempel in Geography typically is traced to Karl Schaefer's (1953) attack on Richard Hartshorne's (1939) *The Nature of Geography*. A militant leftist in 1920s Berlin, Schaefer ended up in Iowa, where his radicalism drew the attention of the FBI in the 1950s (Pavlik, 1990). At the University of Iowa, he taught economic geography and studied with the philosopher of science Gustav Bergmann, an original member of the Vienna Circle who by then had renounced logical empiricism.⁶ Schaefer vigorously attacked what he saw as Hartshorne's defense of an ideographic geography, providing a rallying cry for the emergent spatial science turn and quantitative revolution. Yet Hartshorne was very much a believer in the goal of a rigorously scientific geography, as he himself protested, albeit in a less austere sense than that of logical empiricism (Agnew, 1989; Lukermann, 1989; Cockshott, 2005). Positivism is not discussed in such key spatial science texts as Schaefer's (1953) intervention or David Harvey's (1969) *Explanation in Geography*, nor by influential protagonists of a scientific urban geography (e.g., Berry and Garrison, 1958; Das, 2011; Garegnani, 2012), nor by those urban scholars writing textbooks for the emergent curriculum of spatial science (Foley, 2000; Rogers, 2008a). It was, as Hill has noted, a 'hidden' philosophy (Sheppard and Barnes, 1984; Rogers, 2008b; Wilkinson, 2012).⁷

Beyond this, the quantitative urban research labeled as positivist by others, and occasionally by its protagonists, has never conformed rigorously to Carnap's and Hempel's positivist tenets (cf. Hempel and Oppenheim, 1948). This is not for want of effort: it bespeaks

⁶ Due to Schaefer's untimely death, Bergmann edited his 1953 article prior to publication. Lukermann (1989) suggests that key passages are more Bergmann than Schaefer.

⁷ The Web of Science (accessed January 15, 2012) lists just 27 articles in geography and urban studies for which positivism is a keyword, all dating from 1984 or later.

the more general point that ‘actually existing’ academic research never conforms to ideal-typical philosophical canons. What George Steinmetz (2012a) dubs methodological positivism is thus impossible to fully realize: even the self-described positivist can never truly be positivist. In practice, as is familiar to anyone who follows scientific debates over the meaning, nature or significance of quantitative empirical findings, the most rigorous research design cannot escape interpretive disputes that can be as arcane, and antagonistic, as hermeneutic struggles over the meanings of religious texts. Were the variables correctly measured and observed? Are the data normally distributed? Is the relationship linear? Are the errors independent? Has spatio-temporal interdependence been adequately corrected for, or incorporated? What does the relationship mean? Is the result a case of an unavoidable type I or type II error? Have all potential factors been controlled for? The more socially significant the issue, the more vigorous are the disagreements.

Finally, as noted in passing above, those claiming to be positivist have been far from the disinterested scientific observers portrayed by positivism. Indeed, there has been a strong critical/radical tendency among those aligning themselves with logical positivism/empiricism. In addition to Neurath and Schaefer, logician Bertrand Russell was one of the most prominent radical UK public intellectuals of his age. Indeed, many of the geographers who initially identified with spatial science did so because they thought this could help realize a more equitable post-1945 society. As they began to see flaws in this vision, they came to reject positivism in favor of radical geography (Harvey, 1972; Sheppard, 1995; Suzuki et al., 2010; McFarlane, 2011).

THE SECOND MYTH

My basic proposition is that whereas (logical) positivism is necessarily logico-deductive/mathematical in its theory-language, the converse does not hold. Quantitative scholarship need neither be empiricist nor positivist. The equation made between quantitative and logical positivist (and *status quo*-oriented) urban geography was a result of the particular genealogy of spatial science and its replacement by post-empiricist radical/critical geography. I have written extensively about this elsewhere, and will be brief here (Sheppard, 2001; Sheppard, 2005; Sheppard, 2008). Radical geographers' wholesale rejection of quantitative (mathematical and statistical) research accompanied their turn to Marxism and their rejection of positivism (Harvey, 1972). As Wyly (2009) also notes, this reflected a particular spatio-temporal moment, and is not defensible as a universal principle. The broadly negative attitude toward quantitative scholarship by radical urban and economic geographers, including those trained in this mode of thought, was sutured to their rejection of the neoclassical, mathematical, methodologically individualist and pro-market theories of mainstream economics used by urban spatial scientists to ground their central place and urban rent location theories (Harvey, 1972; Massey, 1973). In fascist Germany, quasi-neoclassical central place theory could be seen as revolutionary advocacy of freedom of choice (Lösch, 1954 [1940]).⁸ Under mid-century American capitalism, however, Christaller's central-place hexagons became an apologia for the capitalist empirical *status quo*. Mainstream economics presented itself as mathematical and positive (Friedman, 1953: even if

⁸ By contrast, Walter Christaller's normative version became Nazi settlement planning (Barnes and Minca, forthcoming).

logical empiricist philosophers rejected Friedmann's claims; Nagel, 1963); the equation has stuck in radical geography.

This equation always papered over a much more complex and nuanced relationship between mathematics and philosophy in and beyond geography. Marx, the inspiration for successive generations of radical geographers, was greatly attracted to mathematical expression (Gibson-Graham, Cameron and Healy, 2013). Neoclassical economists' and location theorists' use of mathematics was hardly positivist. Their passion was reserved for the logical positivists' analytic statements: logical deductions from heroic assumptions whose relationship to observation (synthetic statements) was quite casual—often reduced to “stylized facts” motivating a mathematical model (Clark, 1998). Indeed, their ontological inclination has not been far from structuralism—the search for unobservable laws of motion that underlie and drive the empirical world, without the attention to empirical predictability demanded by positivism. Furthermore, from the 1980s there was a minor key of quantitative Marxism pursued by economic geographers (e.g., Scott, 1980; Sheppard and Barnes, 1990; Webber and Rigby, 1996), albeit garnering little attention from the bulk of radical geographers.

A limited amount of radical, quantitative urban research continues. For example, Roderick Wallace and his colleagues have published a series of articles utilizing arcane methods (for geographers) from mathematics and physics to unpack the profoundly unequal political ecology of health care and service delivery in Manhattan (Wallace and Wallace, 1997a; 1997b; Panico, Pinto and Anyul, 2012). Elvin Wyly and colleagues have undertaken related work around housing (Flyvbjerg, 2012), as have Wei Li and Gary Dymksi for urban financial exclusion (Pasinetti, 2012b; Scazzieri, 2012). The rarity of such work reflects the hegemonic

status of the quantitative=positivist equation among critical urban scholars, but suffices to establish the narrow-minded omitted-variable bias of such an equation. Economic geographers have shown that the dialectical reasoning favored by radical critics of positivist geography overlaps with mathematical theory rather than simply being its Other, and have called for a more pluralist approach to critical research (Plummer and Sheppard, 2001; 2006; Sheppard, 2008; Barnes and Sheppard, 2010; Gibson-Graham et al., 2013). Feminist geographers also advocate a role for quantitative research (e.g., Kwan, 2002; Essletzbichler, 2009). Within geography, movements to bring methods traditionally equated with logical positivism into critical geographic research has been a particularly productive aspect of GIS scholarship during the past decade (Schuurman, 2001; Sheppard, 2005). Beyond geography, the emergence of the mathematics of complexity theory has been productive of a deconstruction of the positivist=quantitative=apolitical equation, reconnecting quantitative methods with critical social science of various stripes (Cilliers, 1998; Rosser Jr, 2000; DeLanda, 2006). Indeed, core tenets of mathematical complexity theory include 1) the proposition that events are not readily predictable from causes (Kellert, 1993)—destroying a central principle of logical empiricism, and 2) that space-time is a social construct—a core principle of critical socio-spatial theory (Prigogine, 1996).⁹

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⁹ Gunnar Olsson traces the failure of logical empiricism as a geographical project to the fact that spatio-temporal processes cannot be inferred from empirical patterns—the ‘pattern-process problem’ widely debated by spatial scientists in the 1960s and 1970s (Smith, 2013).

The above genealogy of positivism shows that it has been neither coherent, nor politically conservative, nor a well-defined research program in urban geography. Due to accidents of the trajectory of spatial science in economic and urban geography, and those of the prominent participants who came to reject it, the baby of quantitative scholarship was tossed out with the bathwater of logical positivism/empiricism.

What, then, of the relevance of quantitative scholarship for critical urban studies? Although we have never been positivist, positivism's specter haunts us. The "post-" in post-positivist urban studies cannot be reduced to positivism's antithesis—to that which emerges to contradict and gore the positivist. Rather, it refers to evermore variegated critical ontologies/epistemologies always discomfited by a positivism that never was. (Consider, for example, Andrew Sayer's [1984, 2000] transcendental realist project of marrying structural with empirical ontologies—one that also sees quantitative scholarship as too limiting.)

Quantitative urban scholarship can be, and has been, bent to the purpose of post-positivist critical/radical urban research, even if too few of these efforts have been widely recognized. Creating space to move beyond misperceptions about positivist and quantitative urban scholarship means abandoning either/or differentiations, in favor of the both/and possibilities of engaged pluralism (Coase, 1937; Barnes and Sheppard, 2010). Thus quantitative urban studies should be thought of as a set of practices, gathered under this term, to be combined with qualitative practices in ways that deny the purity and internal coherence of both—rather than qualitative scholarship's Other. Philosophical or methodological monism, of any stripe, is a false idol for critical urban scholars (as is mix-and-match relativism). Creative, rigorous, critically engaged activist scholarship, capable of advancing the livelihood possibilities of the multifarious

disadvantaged in and beyond cities, and of incorporating their knowledge, agendas and priorities, cannot afford the luxury.

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