

At the same time, some researchers have discovered that individuals' *network thresholds*—that is, the degree of peer influence needed to change their behavior—vary according to their personal characteristics (Valente 1995). In some cases, being integrated into a network puts one in a privileged position with regard to access to information, but in other settings it may be deleterious, for example by putting some at risk (Valente et al. 2005). Research has shown that so-called *opinion leaders* serve as important filters and conduits for information and its diffusion by influencing the adoption decisions of others. The influence of opinion leaders may depend on group norms, however, as leaders adopt innovations early if the behavior is compatible with group norms. Denser and more centralized networks may accelerate diffusion by creating more and more efficient pathways for information to flow through, but may also hinder diffusion when the density is so great that it reduces the community's access to outside information (Granovetter 1973).

Network analysis has been suggested as a methodology useful for measuring *social capital*. Social capital is defined both as the social resources available to a person via their social contacts (Lin 2001), and as a perception by the community that a person is trustworthy and civically engaged (Putnam 1995). Social network measures can provide a direct assessment of individual and communal social capital (Borgatti et al. 1998).

The tools and technology used to analyze communication networks have improved considerably in their ability to handle large datasets (such as the Internet). The field of network analysis continues to grow rapidly, aided in part by the International Network for Social Network Analysis (INSNA), which provides a Web site for access to more information.

SEE ALSO *Communication; Network Analysis; Networks; Social Capital*

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Thomas W. Valente

NEUMANN, FRANZ 1900–1954

The German-born political theorist Franz Leopold Neumann was prominent in the cohort of exile scholars who brought the contested legacy of German social theory to American social and political science after 1933, especially in the study of modern democratic and dictatorial states.

Neumann was born to a Jewish family on May 23, 1900, in Kattowitz in Silesia (now Katowice, Poland). After completing his doctoral dissertation and his qualification for legal practice, he apprenticed with the leading Social Democratic labor lawyer, Hugo Sinzheimer (1875–1945), in Frankfurt. In the last years of the Weimar Republic, Neumann, in practice in Berlin, served as lead counsel for the building trade union, as well as for the Social Democratic Party. His name was reputedly high on the National Socialist (Nazi) arrest list, and he left for London in May 1933. There, he studied at the London School of Economics with Harold Laski (1893–1950) and Karl Mannheim (1893–1947), and he earned a second doctorate with a political theory dissertation on “The Governance of the Rule of Law,” directed above all against the national socialist jurist Carl Schmitt (1888–1985), who had earlier intrigued him. In 1936 he came to Max Horkheimer's (1895–1973) Institute of Social Research in New York, initially as a legal advisor and eventually as a collaborator in the research program. Between 1943 and 1947, impelled by a contraction of the Institute's activities and the less-than-perfect fit between his political focus and the philosophical preoccupations of the Institute's

core, he was—somewhat uncomfortably—in U.S. government service, involved above all in vainly planning a reformed social-democratic future for Germany. In 1949, after two years as a visitor, he became a professor in the Department of Public Law and Government at Columbia University in New York City. Neumann died in an automobile accident on September 2, 1954.

Neumann's publications may be divided into three periods, and key writings from all three phases have been variously retrieved by later generations of scholars in Germany, Italy, and the United States. During his years as a labor lawyer in Weimar Germany, following a methodological dissertation designed to permit a critique of German socialism's failure to move beyond its pre-World War I (1914–1918) tactical individualism in matters of criminal law, Neumann published several important articles, as well as a book, on the place of labor law in the scheme of the Weimar constitution, with labor law being taken, following Sinzheimer, as a body of socially initiated law that runs progressively against the liberal property law foundations of the civil code. The collective efforts of organized labor were an integral presupposition of this laborist approach, and the Weimar constitution was understood as a composite of democratic majoritarian parliamentary rule and a pluralistic social bargaining regime.

In the first years of exile after 1933, in his well-known *Behemoth* (1942), as well as in his posthumously published second dissertation—both of which harshly criticized in the light of events his own earlier assumptions about organized labor—Neumann offered a diagnosis of National Socialism as a political malformation arising from the legal and political order of monopoly capitalism, which neither liberalism nor laborism can comprehend. His structural analysis led him to deny the view, not alien to some of his Institute associates, that the regime should be understood as a brutally overdeveloped state with an all-encompassing bureaucracy. The Fascist slogans of “corporatism” and “totalitarian state” were mere ideological cover for a condition of incoherent conflict, according to Neumann. Nazi Germany was not to be likened to Thomas Hobbes's *Leviathan* (1651) but to his *Behemoth* (1682), the account of civil war and “confusion.”

Notwithstanding the Marxist sociological tools he applied to its structure, Neumann's critique focused on the absence of a rational state in Nazi Germany and the dynamic destructive consequences of the unresolvable power struggles that constituted the system of rule. Expansionary and exploitative war without limit was the only way for such a regime, and such overreach cannot achieve a settled victory. The frame of Neumann's argument recalls the reading of G. W. F. Hegel (1770–1831) advanced at nearly the same time by his friend Herbert

Marcuse (1898–1979) in *Reason and Revolution* (1941), but Neumann lacked Marcuse's philosophical interests and he placed the weight of his work on the conjunction of his political theses with his detailed and authoritative analyses of current social, political, and economic information from German sources. It was the latter aspect that won him the greatest recognition from the dozen or more academics that reviewed *Behemoth*, but the more conjectural frame fascinated younger political writers, such as C. Wright Mills (1916–1962), who welcomed the work as an inspiration for a fresh, unhackneyed start for leftist diagnosis of trends whose dangers were not limited to Germany. Mills's influential *Power Elite* (1956) applies the analytical features that he most appreciated in Neumann's study to the American conditions of the 1950s. Neumann's mix of high humanistic ideals and tough-minded acceptance of stubborn facts recurrently intrigue a constituency on the independent Left, notably in Germany.

Neumann's writings after his years of wartime government service were constructive in aspiration, notwithstanding his occasional evocations of the critical theory formulas of the Institute of Social Research; but the work remained inconclusive. On balance, it represented an attempt to develop a theory of liberal democracy that would be responsive to the social and cultural concerns of the radical thinkers he took as his models, but that would, at the same time, support a secure constitutional order. The distinguishing feature of his work throughout is the conviction, first, that law is a mode of power and, second, that not all power in legal form is simply reducible to domination by force or fear. In its aspect as a pattern of guaranteed rights, the rule of law has a minimum ethical function beyond its ideological and economic roles; in its character as rule by democratic enactment, it has the possibility of transforming society. Neumann's central puzzle was how a political force, subject to the logic of power and confronted with the totalitarian threat immanent in all advanced societies, could serve the objectives implicit in the idea of a free and rational humanity.

SEE ALSO *Corporatism; Frankfurt School; Hegemony; Imperialism; Mills, C. Wright; Nazism; Power Elite; Totalitarianism; World War II*

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NEUROECONOMICS

Neuroeconomics is a new and emerging approach in the social sciences that integrates theories, methodologies, and ideas from neuroscience, economics, and psychology to study how individuals make economic decisions. Typically, research in this field involves observing neurological activity in experimental tasks and situations, through brain imaging in humans (which monitors electrical activity or blood flow in clusters of neurons) and single neuron measurements in animals (which monitors individual neurons firing via tiny electrodes inserted into an animal's brain). By linking observed behaviors with the neurons and brain regions that activate during such actions, neuroeconomic researchers seek to discover not only the functionality of various brain regions, but also the underlying processes that occur in decision-making as different neural systems interact. While the full benefits of this new interdisciplinary approach are still unclear, neuroeconomics has generated excitement due to its potential to advance the existing behavioral theories of its contributing disciplines. Particularly, as neuroscience and psychology are closely related fields, neuroeconomics strongly supplements behavioral economics, a subfield that seeks to integrate psychology into the rational-choice framework of neoclassical economics. Indeed, by providing a window into what was previously regarded as the “black box” of the brain, neuroeconomics can improve the accuracy of our existing decision-making models and generate new insights into the basis of economic behavior.

One illustration of the potential insights derived from neuroeconomics can be found in the neuroscientific version of the classic two-player “ultimatum game” from game theory. In the traditional game, the first player is asked to decide how much of a sum of money he wishes to keep for himself and how much he wishes to offer to a second player. The second player can either accept this offer, in which both players receive the amount allocated to him by the offer, or reject it, in which neither party receives any money. While economic theory suggests that the second partner will rationally accept any nonzero offer, in behavioral economic experiments the second player typically rejects low offers (e.g., two dollars, when the other player receives eight dollars). When the experiment is conducted using functional magnetic resonance imaging (fMRI), brain scans of participants who face unfair offers indicate heightened neural activity in two competing brain regions: the bilateral anterior insula, a region associated with the emotions of anger, distress, and disgust, and the dorsolateral prefrontal cortex (dlPFC), a region associated with reasoning and deliberation. Interestingly, when insular activation exceeded dlPFC activation, participants typically rejected low offers, whereas when dlPFC activation exceeded insular activa-

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