
A Scholar and a Simulation Ahead of Their Time: Memories of Harold Guetzkow

Simulation & Gaming
42(3) 301–307
© 2011 SAGE Publications
Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>
DOI: 10.1177/1046878110393867
<http://sg.sagepub.com>



Kenneth Janda¹

Abstract

Research on international relations at Northwestern University in the 1960s and 1970s revolved around Harold Guetzkow's pioneering work on the simulation of international processes. As a beginning faculty member, I benefited from the insights and excitement of that special time and place. As a participant in one of his events, I experienced the challenges he faced in carrying off the complex operation of man-machine simulation, when the machines consisted of typewriters, thermofax machines, and a mainframe computers with punch-card input. As a beneficiary of the revolution introduced by networked microcomputers, I realized that Guetzkow's successes would have been multiplied many times over if the proper technology had been available to him.

Keywords

Harold Guetzkow, INS, computers, political science, Cleo Cherryholmes, Michael Shapiro, voting, simulated international relations, SIP

Harold Guetzkow was a triple-threat scholar and academic star when I joined the Northwestern University, political science faculty in 1961. I was a freshly minted PhD; he was a full professor of political science, sociology, and psychology and (to me) the most famous of my new colleagues. Having just published an article (my first) on the concept of leadership (Janda, 1960), I was thoroughly familiar with Harold's edited volume, *Groups, Leadership, and Men: Research in Human Relations* (Guetzkow, 1951). I also knew that Herbert Simon (who won the 1978 Nobel Prize in economics) dedicated

¹Northwestern University, USA

Corresponding Author:

Kenneth Janda, Department of Political Science, Northwestern University, Evanston, IL 60201, USA
Email: k-janda@northwestern.edu

Models of Man, Social and Rational (Simon, 1957) to Harold. Naturally, I regarded Harold Guetzkow as a social psychologist and a likely mentor as I studied domestic political behavior. I was unaware that he had shifted his focus to international relations. I also knew nothing about simulation as a research method.

Although Harold's service at Northwestern University (1957-1986) overlapped substantially with mine (1961-2002), we never collaborated on any research. I did no further research on leadership beyond that one article and concentrated instead on American and comparative political behavior. Nevertheless, I attended many of Harold's weekly international relations bag lunches and was fascinated by the work that he and his students were doing on his Inter-Nation Simulation (INS) and also on the Dimensions of Nations project. Driven to learn how Harold and his students devised methods to meet their research challenges, I was attracted to him by methodological rather than substantive interests.

Although we did not collaborate in research, we did collaborate in teaching. Having written a book on computer applications in political research (Janda, 1965), I was interested in computer simulations of political behavior. While my interest differed from Harold's on man-machine simulations, it sparked our joint supervision of two doctoral dissertations in 1966—one by Cleo Cherryholmes and the other by Michael Shapiro—on computer simulations of congressional voting (Cherryholmes, 1966; Shapiro, 1966).

Memory fails as to how Cleo and Michael came to work together on their dissertations. Cleo had been deeply involved in Harold's INS project. Harold and Cleo coauthored *INS Kit* (Guetzkow & Cherryholmes, 1966), which was the *Participant's Manual* for INS players. Michael studied congressional behavior. In any event, they proposed creating a FORTRAN computer program that embodied hypothesized and established models of House voting on issues dealing with foreign affairs (Cleo's focus) and domestic spending (Michael's focus). Their program contained equations that computed expected voting positions, which were analogous to the equations for "probability of office-holding" and "validator feelings of national security" embedded in the machine side of INS (Guetzkow, 1964, pp. 254-256).

Cleo's and Michael's work differed from regression-based statistical modeling in two major respects. First, they did not rely on least-squares fits to determine their coefficients from congressional data, but formulated their equations from existing research about legislative behavior. Second, and more significantly, their computer program had a back-end "communication phase" that modified predictions from the program's deterministic equations according to a stochastic model of legislator interactions.

Every House members' initial voting position could be modified by the probability of interacting with one of the other 434 members of Congress. After a given member's voting on a foreign affairs issue was predicted by deterministic equations (e.g., representing the member's party, state, urban-rural character of district, etc.), the member's position was subject to change after interacting with specified percentages of other house members (e.g., those from his own party, the opposition party, his home state, etc.) drawn at random from each group. The operating assumption was that members' programmed-determined positions would be strengthened by each chance positive interaction in the communication phase and weakened by each chance negative interaction.

Cherryholmes and Shapiro (1969) found that their simulation predicted congressional voting more accurately when run with the communication phase than without it. In 1969, 3 years after receiving their degrees, they published their joint research in *Representatives and Roll Calls: A Computer Simulation of Voting in the Eighty-Eighth Congress*, which contained an appendix with their computer program. Twenty years later, their program was adapted for application to different Congressional voting data, yielding similar results (Chalker, 1989).

It is unusual enough for PhD candidates in political science to cooperate in writing joint dissertations. It is rare for their efforts to culminate in a coauthored book. Cherryholmes and Shapiro (1969) owed a great deal of their success to Harold, whose extensive experience with simulations of various types led to him doing far more than his share of advising on their joint dissertations. Few scholars outside of Northwestern University during that era know of Harold's role in supervising doctoral dissertations on computer simulation of *domestic* political processes.

Concerning Harold's major interest, man-machine simulation of international relations, we talked little, expect for one important exchange that has stayed with me for 40 years and that I will relate after disclosing my personal difficulty with his research. Harold once invited me to participate in an INS run, but I confess that I found it very confusing. There was so much to do in the simulation and so little time to do it. Participants not only had to act out their roles, but also were burdened by filling out pieces of paper reporting their actions and given little time for their efforts. These reports on each session of the simulation, after processing on the computer, generated the valued information for the next session. (Hence, the designation of INS as man-machine simulation.) Although I realized the importance (and the difficulty) of collecting and processing the information from each session, I declined other opportunities to participate. Unable to embrace whole-heartedly the life work of a scholar whom I so respected made me uncomfortable.

Nevertheless, I greatly admired Harold's approach to INS, which he explained to me decades ago during a memorable walk on Northwestern University's campus. Harold said that his INS was not a war game—using the name for scenarios sponsored by the Joint War Games Agency (which nevertheless supported his research). In such games, people typically played the roles of Foreign Minister for France, or President of the United States, or General Secretary of the Communist Party. Harold feared that anyone asked to play such roles would play out stereotypes instead of reacting personally to the conditions and options that they faced.

Harold's approach was to create nondescript countries with names like Bingo and Utro and generic offices such as official domestic advisor, foreign affairs diplomat, domestic opposition leader, and so on. In one publication, Harold wrote that nations "are given artificial names such as 'Algo' and 'Omne,' in order to reduce attempts on the part of the participants to role-play a particular real-world country" (Guetzkow, 1964, p. 253). Sometimes, he filled simulation positions with players chosen on the basis of personality inventories: for example, putting authoritarian personalities in Bingo and nonauthoritarian personalities in Utro to see whether Bingo was more likely to begin conflict than Utro.

Others have noted this impersonal feature of INS (Druckman, 1968), but the feature impressed me profoundly. By employing generic offices and mythical countries, Harold believed that simulation could lead to nomothetic laws in preference to games that generated expected outcomes to match presumed idiosyncrasies of personalities and nations. My admiration for his approach only increased my discomfort with actually participating in INS sessions. Why was I so negative when so many others praised INS?

Preparing to write this article, I opened my long-unopened file folder for Harold Guezkow. Some items from that file were already cited, but another helped me understand my personal reaction to INS. It was a Sunday supplement story in the *Chicago Tribune Magazine* of July 21, 1967. Clarence Petersen, associate editor, wrote about participating in INS as the leader of Algo, which he characterized as “a feared but respected nation” (Petersen, 1967). Here are excerpts from his account (note that the *Chicago Tribune* of that era was stubbornly trying to simplify English spelling):

As my government took power, we were pleased to find a ready-made bureaucratic [*sic*] apparatus thru [*sic*] which to accomplish our ends. Every undertaking would be represented on at least one of about 10 forms provided. If that doesn't sound like much paper work, consider that the instructions covering it ran 36 pages, as compared to three pages of world history [of the six simulation nations]. And consider too that in our world, 10 minutes equaled two months of conventional time.

Every decision of every individual in all six nations of the world would pass thru the computer. The computer would assimilate this information and translate it into numbers which would tell us (if we could read them correctly) the effects of our combined decisions.

Mr. Petersen then commented on the simulation reports that he filled out as Algo's leader to allocate capital investment for increased industrial capacity and for research and development leading to decreased production costs. He had to

estimate how much of the total of each should be invested in each of [Algo's] five corporations (including four foreign-based corporations) to insure (a) the best return on our investments, (b) a favorable balance of trade, and (c) a favorable effect on political relationships at home and abroad.

And friends, not being able to figure all this out in 10 minutes, we did the only thing we could—we took a shot in the dark.

How did Algo's leader know whether his shot hit the mark?

Like the real world, the simulated world had a World Press. This consisted of one Northwestern university journalism student and a typewriter. . . . The computer and the World Press informed us that the citizens of Algo were starving and that we had accomplished little toward improving diplomatic relations. . . . In the face

of this, I became even more confused by the state of affairs than I had been in the beginning.

About the debriefing after the simulation, he wrote,

In that final confessional, almost everyone reported that altho [*sic*] he had at first been bewildered by the mechanics—the paper work—he finally had begun to catch on. I had not caught on even then and admitted it.

Nevertheless, the Algo leader (back in his role as associate editor of *Chicago Tribune Magazine*) wrote, “Everyone said he enjoyed the simulation and several expressed a wish to come back and try again.”

From the Algo leader’s four-page contemporary and personal account, I drew two conclusions. First, the associate editor and I agreed on INS’s demands on players. Second, the man-machine simulation was ahead of its time in terms of available computer technology. INS used paper-pencil-calculator technology for activities that were ideally suited to computer screens and intranet connections. Guided through user-friendly forms, players would have found it much easier to estimate resource allocations and could have received more informative feedback on their decisions, making the experience more manageable and satisfying.

Of course, when Harold began his simulation work in 1958—more than a half-century ago—no one could have envisioned today’s computer technology being applied to man-machine simulation. Using an IBM 650 computer (which required punch cards for both input and output), Harold Guetzkow stood at the cutting edge of computer applications in political science. He and his INS man-machine simulation were both far ahead of their time.

In fact, Harold later recast his INS project as Simulated International Processes (SIP), broadening his attention to embrace more all-computer simulations. On June 18, 1973, he sent me a memo with his 1972 “Final Report” on the SIP project (Guetzkow, 1973). I replied in part on July 20:

You did not ask for my own evaluation of your simulation efforts, but let me give them to you anyway. Your INS and SIP activities, in my view, have been the major features of our international relations program, and international relations is what we have been best known for at Northwestern. I have always been proud to be in the same department with you, and I draw satisfaction from the identification of Northwestern with simulation.

Almost 40 years later, I draw satisfaction from my sentiments expressed in that faded Thermofax copy from my files.

Declaration of Conflicting Interests

The author declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The author received no financial support for the research and/or authorship of this article.

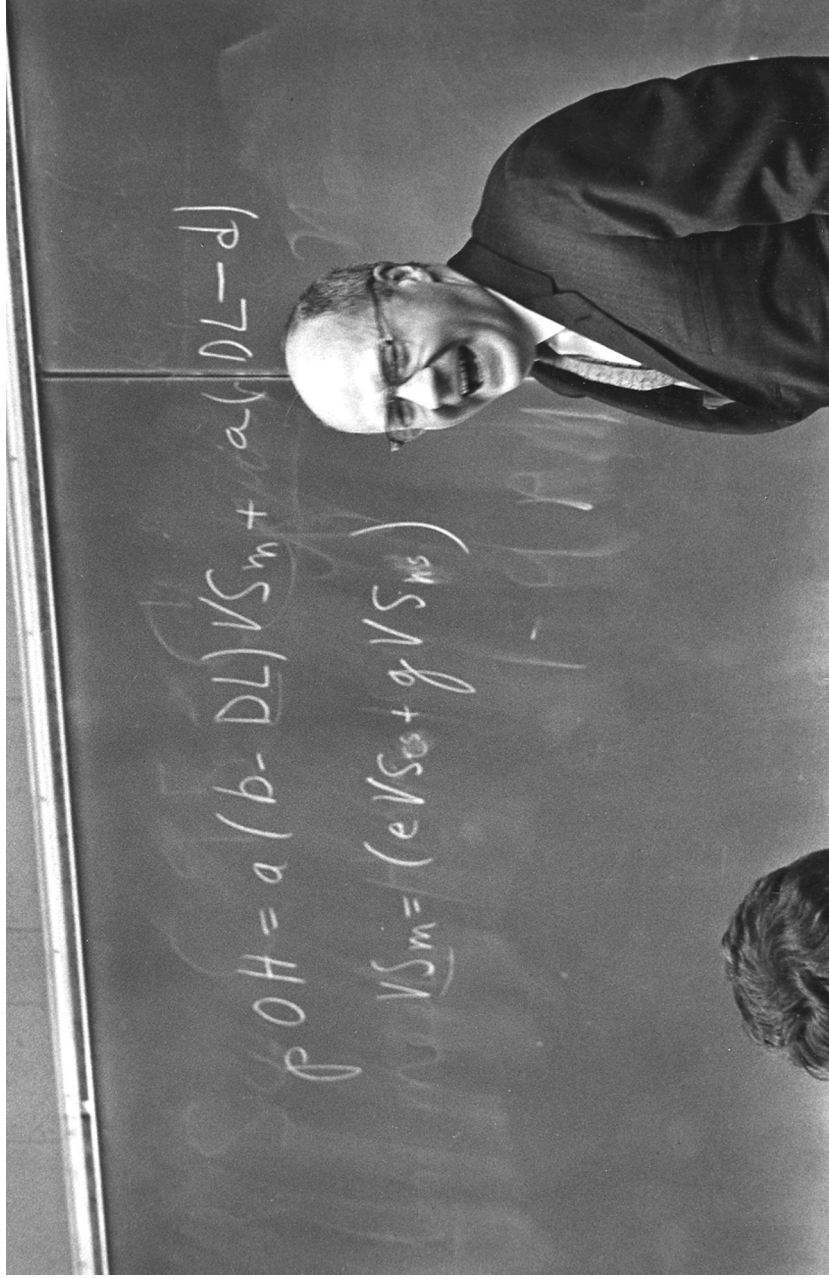
References

- Chalker, R. (1989). *Simulating voting in congress: The communication effect*. Unpublished undergraduate thesis, Northwestern University, Evanston, IL.
- Cherryholmes, C. H. (1966). *The house of representatives and foreign affairs: A computer simulation of roll call voting*. Unpublished doctoral dissertation, Northwestern University, Evanston, IL.
- Cherryholmes, C. H., & Shapiro, M. J. (1969). *Representatives and roll calls: A computer simulation of voting in the eighty-eighth congress*. Indianapolis, IN: Bobbs-Merrill.
- Druckman, D. (1968). Ethnocentrism in the inter-nation simulation. *Journal of Conflict Resolution*, 12, 45-68.
- Guetzkow, H. (Ed.). (1951). *Groups, leadership, and men: Research in human relations* (Reports on research sponsored by the Human Relations and Morale Branch of the Office of Naval Research, 1945-1950). Pittsburgh, PA: Carnegie Press.
- Guetzkow, H. (1964). Simulation in international relations. *Proceedings of the IBM Scientific Computing Symposium on Simulation Models and Gaming, December 7-9, 1964*. Yorktown Heights, NY: Thomas J. Watson Research Center.
- Guetzkow, H. (1973). *Final report on Contract SD 260 with the Department of Defense covering Simulated International Processes (SIP) activities from June 15 1964 to September 14, 1972*. Unpublished manuscript.
- Guetzkow, H., & Cherryholmes, C. H. (1966). *Inter-nation simulation kit*. Chicago, IL: Science Research Associates.
- Janda, K. (1960). Toward the explication of the concept of leadership in terms of the concept of power. *Human Relations*, 13, 345-363.
- Janda, K. (1965). *Data processing: Applications to political research*. Evanston, IL: Northwestern University Press.
- Petersen, C. (1967, July 21). Playing the statesmanship game. *Chicago Tribune Magazine*, pp. 22-24, 31, 33.
- Shapiro, M. J. (1966). *The House and the federal role: A computer simulation of roll-call voting*. Unpublished doctoral dissertation, Evanston, IL: Northwestern University.
- Simon, H. (1957). *Models of man, social and rational: Mathematical essays on rational human behavior in a social setting*. New York, NY: Wiley.

Bio

Kenneth Janda, Payson S. Wild Professor Emeritus, received his PhD from Indiana University in 1961 and joined Northwestern University's Political Science Department the same year. He works in American government, political parties, elementary statistics, and computer methods. His books include *Political Parties: A Cross National Survey*, *Parties and Their Environments: Limits to Reform?* and the American government textbook, *The Challenge of Democracy*. He cofounded and coedits the international journal *Party Politics*. His current research is on party system effects on country governance.

Contact: k-janda@northwestern.edu



Harold Guetzkow