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Jan de Leeuw and Statistics at UCLA

Donald Ylvisaker

University of California, Los Angeles

Abstract

Jan de Leeuw came to University of California, Los Angeles (UCLA) Statistics at a crucial time in its history. We set out some details of what he found when he arrived on UCLA's north campus in 1987, what was there when he left it some 27 years later, and how he fashioned the changes that are now so widely recognized.

Keywords: Jan de Leeuw, University of California, Los Angeles, UCLA, academic statistics, history of statistics.

1. Old times

Statistics has had a presence on the University of California, Los Angeles' (UCLA's) north campus – social, physical, and life sciences, humanities, fine arts – since 1939 when Paul Hoel joined the Mathematics Department faculty; its arrival on the south campus – biomathematics, biostatistics, the medical school – came with the appointment of Wilfrid (Will) Dixon in 1955. The groups that emanated from these beginnings were always in some contact; that their early interests ran to theory on the one hand, and applications and computing on the other, was a natural development. In one particular, Dixon had little interest in theory, and was responsible for the start-up of **BMDP**, a statistical software package for biomedical analyses, in the early 1960s.

Biostatistics quickly became a healthy Division of the School of Public Health, and a Biomathematics Department in the medical school was begun in 1967. In Mathematics, a statistics and probability group was fully formed by the end of the 1960s and remained a viable, vibrant group within that department through the 1970s; in this way, UCLA bypassed the wholesale founding of statistics departments that swept through the country in the fifties and sixties.

2. Times change

By the early 1980s, without a department of its own, it became increasingly clear that the group of faculty in Mathematics interested in statistics could not maintain its strength – the computer revolution was coming into full view and, dependent on Mathematics for resources, the group was in no shape to deal with it. Especially, computer facilities were lacking, faculty count was hard to maintain, and a graduate program that required students to pass mathematics qualifying exams was dated – graduate student enrollment was soon in decline.

A call for a fresh approach, interestingly enough, came from a new source. In 1984, faculty in the Social Sciences Division of the school recommended to their dean that at least six quantitative hires be made in their departments, this to work toward an interdepartmental program of statistics. The statisticians in Mathematics and their colleagues in Biostatistics, in reacting to this news, formulated a letter that called for a new Department of Statistics to serve the north campus generally. The Dean of Physical Sciences would have no part in such an enterprise but, in 1986, did allow the formation of a separate Statistics Division within the Mathematics Department. Statisticians there then had considerably more freedom in their teaching program, but they remained beholden to Mathematics for funding.

The Dean of Social Sciences, meanwhile, responded to his faculty's recommendation and began approving appointments in line with it. He instituted a search in 1986 for someone to lead a social statistics program that would incorporate the new faculty. A committee drawn from the Economics, Sociology, Psychology, and Mathematics faculties was charged with conducting the search. Two highly qualified candidates soon emerged, each with much in their favor, and neither with a clear-cut advantage. They came from social science backgrounds and, most simply, could be thought of as the more and the less theoretical candidate in that light. Jan de Leeuw was then Head of the Department of Data Theory at the University of Leiden in the Netherlands. Several things about him were attractive in his candidacy: his research was in non-linear multivariate analysis, an area of great importance and in serious need of attention in the years that spanned his career; his philosophy that put procedures/algorithms at the heart of data analysis, with models for data providing their testing grounds; his immersion in computer programs to implement such procedures. He was offered the job, and he came to UCLA in 1987 as a professor with half-time appointments in Psychology and Mathematics. His arrival on campus brought us the considerable benefits of his administrative skills, his vision for the future of statistics, and the gusto with which he pursued what he deemed essential to that vision.

3. New times

In 1987, a UCLA undergraduate seeking a major in Economics, Geography, Psychology, Sociology, or the (Interdepartmental) Communications Studies program was obliged to take an elementary statistics course. The version taught in the Mathematics Department could serve in any case, but there were similar courses in Economics, Sociology, and Psychology, the last especially for their own students. A narrower introductory course was available in the Political Science Department, though it was not required for their majors.

At the time, upper division statistics courses were taught in Mathematics, Economics, Psychology, Sociology, and Political Science, but some could also be accessed in the Biostatistics Division of the School of Public Health. They collectively served as electives for those major-

ing in Economics, Geography, Mathematics, Political Science, Psychology, and Sociology.

There were quantitative faculty scattered across the Social Science departments and Psychology who were involved in the teaching of statistics courses, but the majority of such courses were given in the Mathematics Department and, on the south campus, in Biostatistics. The Division of Statistics within Mathematics could count on five full-time faculty, and Jan's joint appointment added another one-half. Any funding for the Division came through Mathematics and there was scant support within the department at large for such. In particular, the mathematicians there could, in general, support mathematical statistics as it had been practiced in the department for some thirty years, but they had little sense of the changing character of the discipline. That a way out of Mathematics might ultimately come through the Program in Social Statistics was ample reason for those in the Division to support Jan's efforts going forward.

As someone who could step into the environment that was statistics at UCLA during this period, Jan was a great choice. He actively sought out those who had or might have an interest in the new program. In making these connections he was straightforward in his opinions, open to those of others, and a good deal more interested in cooperation than in confrontation. In short, he quickly put himself in a position to succeed in his role as Director of the program.

One of his first actions was to form a committee to study the future of statistics and its teaching on the (north) campus. In this, the Departments of Economics, Geography, History, Mathematics, Political Science, Psychology, and Sociology were represented, as was the Division of Biostatistics. This brought about an unprecedented gathering of people at UCLA having statistical interests and, accordingly, committee members learned much of the particular interests of others. The Committee looked at the statistical training of Social Science graduate students, and at the undergraduate statistics teaching across the campus. A 1989 Committee recommendation to the Dean of Social Sciences was that a separate department be created to deal with these issues, echoing the 1984 recommendation made to the Dean of Physical Sciences.

Not surprisingly, little came of this recommendation; the need for a separate department was there, but the education of the Administration to this effect was another matter. The Administration, generally, was mindful of the appropriate training of graduate students in the Social Sciences and, all the more, it could understand the need for the proper teaching of introductory statistics as this took place on a noteworthy scale. The stumbling block for some time, especially for the deans of the Physical and Life Science Divisions of the College, was the notion that statistics had an important and useful research program to pursue. Overcoming this bias in those who were in position to do something about it took a good six years, and administrative details added another three years to the wait for a separate department.

In the meantime, the appointment of relevant Social Science faculty had taken place with considerable success and, in 1991, some joint space opened up so that the Program could then give some outward evidence of being existant. Had the Administration been able to move more quickly and aggressively toward a department, perhaps it could have retained some of these appointments. As it was, three of them had departed by 1993, heading to Stanford, to the University of Chicago, and to MIT. On the plus side, Dick Berk had come to the Sociology Department in 1988 and would stay on to later become a valued member of the new statistics department.

Jan survived the first years of his UCLA tenure with little outward signs of administrative

wear and tear. His research output was substantial and his educational duties were well tended to. For evidence of this, refer to his well-stocked website ([De Leeuw 2016](#)). Sorting through publications during his first five years on campus shows an average of seven papers a year, and this alongside a sizeable number of what we would call technical reports. Then too, there was a steady stream of Dutch students visiting him, eight of whom finished their doctoral degrees at Leiden under his direction after he came to UCLA.

By way of contrast with this last, in 1987 the enrollment of statistics graduate students in the Mathematics Department was as low as it had been in some years. We had produced nine Ph.D.'s in the years 1983-87, and but three finished in the years 1988-92, one of them in a joint program with the Economics Department. With some active recruiting of students into the Statistics Division in the early 1990s, aided significantly by a 1991 National Science Foundation developmental grant, the number of Ph.D. degrees awarded rebounded to eight in the years running up to the appearance of a statistics department in 1998.

In his early years here, Jan and I regularly had coffee together to talk over these matters, and more. With regard to working toward a department, one large difference between us lay in the fact that he had the ear of a dean while I, as the Director of the Statistics Division in Mathematics, could raise issues of support with a department chair. Administrative reports, not research, emanated from our get-togethers. In the early 1990s we jointly ran a student seminar that, to my way of thinking, emphasized a common, down-to-earth philosophy of statistics. Students gave talks and did reports, and there were speakers drawn from other departments and from the outside world. Some of the latter talks got us involved in consulting and this led, ultimately, to the formation of a consulting center that could help fund students, aside from having them engage in concrete pursuits.

Two major milestones might be pointed to along the path to a department. In 1993, the Dean of Physical Sciences initiated an Interdivisional Program in Statistics with wide support from the Administration. Along with this, some new and more suitable space was made available to the Program. In 1994, four of the five and a half faculty in the Statistics Division of the Mathematics Department retired, courtesy of a handsome early retirement program offered by the university. Any benefits to the Program in Statistics were not so obvious but, armed with this news, Jan, Dick Berk, and I had a meeting with the Provost of the College and the new Dean of Physical Sciences. Our pleas for substantial relief seemingly fell on deaf ears, but some necessary departmental seeds had nonetheless been sown.

An agreement to have an outside review of statistics at UCLA followed, and in early 1995 the outside committee returned the recommendation that the university establish a Department of Statistics and to do so, specifically, within the Division of Social Sciences. That the department came to be housed in the Physical Sciences was due in no small part to the wholehearted and most welcome support of the Dean of the that Division. Details came to be settled, and the Department of Statistics opened in 1998 with Jan as its Chair.

In simplest terms, the department came into being because Jan acted as the prime mover at every intermediate stage, and was the hardest worker toward this goal. The stamp of his personality was seen in many things. For one, his lead on all things computer was more than impressive. What he has accomplished in this arena is best left to others to express, and will doubtless be recounted in some detail in this Festschrift. To better purpose here, one can relate some of the effect he has had on statistics at UCLA.

4. Departmental times

The path to a department was assuredly a long and arduous one. Yet, when the day arrived, there remained the realities of implementation. The new department needed space (in a tight market for space), had faculty to be enlisted (in a tight market for funds), there was much planning needed to set coursework programs, and there were continuing students and new admissions to be educated, and given direction. Jan, as Chair, had worked himself into another fine mess, which makes the progress under his leadership all the more impressive.

The base of support for a department, to the Administration at least, had always been the teaching of the introductory statistics course for UCLA's north campus students. These courses are by now taught, in three versions, to some 2800 students each year, fully justifying the department's mission in this regard. Of particular note here, the separate lower-division Programming with R course enrollment this past year has exceeded 300.

Statistics is now a most fashionable pursuit, of course, and much of its popularity has come about since the department was founded. This shows up at UCLA particularly in the growth of upper division enrollments: some 2400 students per year at present, including over 300 in programming and computation classes. Majors and minors in statistics have only been approved in the last dozen years, and the total number of them is now over 300, and climbing. In these lower and upper division programs Jan has worked hard to ensure high quality teaching of appropriate, modern statistics courses. It shows.

To fulfill its teaching responsibilities, the faculty size has gone from four to fifteen and the teaching faculty, lecturers, has increased from two to seven. In the face of burgeoning enrollments there is a heavy burden on departmental resources. Still, the Administration has gone out of its way to acknowledge the value of the statistics teaching and research programs, and to the extent that, in one tight budget year, the department was able to make the only search allocated to the Division of Physical Sciences. The quality of the new faculty is easily spoken to, and the future status of the department is assured.

In its established space in the Mathematical Sciences Building, visitors find a bustling departmental environment, replete with some 75 graduate students, of whom two-thirds are doctoral students. A new professional masters degree program, a long-term gleam in Jan's eye, has been approved to start in the fall of this year, thereby broadening the influence of UCLA Statistics in the larger Los Angeles area.

The department has become a destination for students to the extent that there were more than 600 MS applicants for the coming year, and over 200 for the Ph.D. program. The supply of our graduates has increased dramatically in the past ten years, to some seven Ph.D.'s per year, for example, a five-fold increase over the remarkably steady supply the university provided over the latter half of the last century. While there has been some change in its character, the demand for our students has grown proportionately. Not surprisingly, software companies, research labs, and consulting jobs have displaced the more "industrial" hires in fields such as aerospace and pharmaceuticals. Perhaps as many graduates pursue academic jobs as ever, but a decreasing proportion of them wind up there, again not so surprising in this day and age. Overall, it is a very good time to be a statistician.

Jan's mark as Chair can be measured in the growth in size and stature of the Statistics Department. Along with these outward signs, his prescient belief that procedures and algorithms are at the center of statistics pervades the department's atmosphere. He has created, albeit with some help, a department in his image. Thanks, Jan.

So where does he find the time to start journals, edit other journals, write bundles of papers, direct the research of a long line of students, come to know all things cinematic, musical, and literary? Good question. In fact it is such a good question that, following many years of close observation, I will venture an answer. Jan is a workaholic of course, and quick-witted. His advantages, going further, are that he sees simplicity where others do not, and he finds it easy to convey his thoughts in plain language.

References

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Affiliation:

Donald Ylvisaker
UCLA Statistical Consulting Center
University of California, Los Angeles
8118 Math Sciences Building, 155404
405 Hilgard Ave.
Los Angeles, CA 90024-1554, United States of America
E-mail: ndy@stat.ucla.edu
URL: <http://www.stat.ucla.edu/~ndy/>