# The Development of Social Network Analysis
# In the Spanish-Speaking World: A Spanish Chronicle

José Luis Molina
Departament d'Antropologia social i cultural, Universitat Autònoma de Barcelona
April 19, 2006, version 2a

## Origins, 1991-1998

Before the Sunbelt XIV held in New Orleans in 1994, Spanish-speaking scholars interested in Social Network Analysis (both in Latin-America and Spain) were a handful of disconnected people. In Spain, a sociologist from the University of Malaga, Félix Requena Santos had published the first article in Spanish about Social Network Analysis (SNA) in 1989, "El concepto de red social", in the journal *Revista Española de Investigaciones Sociológicas* (REIS). At about the same time (1990), Narciso Pizarro, a sociologist with a physics background at the Complutense University, published an introductory article, "La teoría de redes sociales". Requena's article was followed by more of his publications: a book applying the social networks perspective to the job market, *Redes sociales y mercado de trabajo: Elementos para una teoría del capital relacional* (1991b), and an article on the same subject. (1991a).

Aurelio Díaz, anthropologist, published in 1992 a book about cocaine consumers in Barcelona based on the snowball method and the next year, Josep A. Rodríguez, a sociologist from the University of Barcelona, published in REIS an analysis of academic sociology in Spain based on co-citations of the articles published in the same journal (1993). Josep A. Rodriguez and his colleague John Mohr, former students at Yale University, had learned from Scott Boorman the theory and methods of social network analysis.

In the same year, Félix Requena published a review of social network items for surveys (1993), and in the next year he published another book and an article on friendship and family (1994a, 1994b). Also in 1993, Carlos Lozares, a sociologist from the Autonomous University of Barcelona, taught a graduate course on social network analysis, the first one in a Spanish university. He had visited the University of California San Diego several times and was familiar with the concepts and methods of SNA.

Three Spanish-speaking participants in the New Orleans Sunbelt conference in 1994 organized two Sunbelt Conferences in the following years (José Luis Molina, 1998 – Sitges, Spain and 2002 – Josep A. Rodriguez, and Jorge Gil Mendieta, Cancun, México. Jorge Gil Mendieta had been introduced to SNA by the work of Frank Harary and was familiar with the work of Linton Freeman at the University of California, Irvine. In my case, although the early anthropological work of J. Clyde Mitchell was well known in my department, we did not know about the next three decades of his work in sociology. Before attending the 1994 Sunbelt, I had exchanged some faxes with Alvin Wolfe, the president of INSNA at that time and some emails with Steve Borgatti and H. Russell Bernard, anthropologists like myself. In fact I had meet with Steve Borgatti to show him my software *Netmanager*, a *DBaseIII* (!) based program for gathering personal network data to be analyzed with *UCINet IV*. I attended the workshop gave by Stanley Wasserman and Katie Faust (and I got the selected chapters of their unpublished manuscript *Social Network Analysis: Methods and Applications*) and saw and heard the keynote speech gave by Barry Wellman under the weight of dozens of Mardi Gras collars.

After the 199 Sunbelt, SNA become a developing field in Spain. In 1995 Carlos Lozares published "La teoría de redes sociales" as an introduction to SNA while Félix Requena published an article (1995) in the same journal. Also in 1995, Josep A. Rodríguez published an introductory book to SNA, while José Luis Molina published a programmatic and methodological article, "Análisis de redes y cultura organizativa: una propuesta metodológica" (1995).

**Sunbelt XVIII and Beyond**

During Sunbelt XIV (London, 1996) Frans Stockman and Tom Snijders (among others in the scientific committee) and Josep A. Rodríguez and José Luis Molina (local committee) agreed to organize a Sunbelt conference in Barcelona in 1998.

Just before the Sunbelt XVIII held in Sitges (Barcelona) in 1998, Narciso Pizarro and Tomás Rodríguez Villasante another professor of the Complutense University, organized in Madrid the seminar *"Social Network Analysis. Consolidación de un paradigma interdisciplinary,"* with the participation of Ronald Breiger, Patrick Doreian, Barry Wellman and Harrison White. The contributions of those scholars plus some professors from the Complutense University were published some time later in a special issue of the journal *Política y sociedad* (2000). Narciso Pizarro published in

1998 a manual on social science with a chapter devoted to SNA, while also in 1998, Tomás R. Villasante published a two-volume book that continued his work in Participatory Action Research.

The *I Mesa Hispana para el Análisis de Redes Sociales* was held in Sitges at the prior to the Sunbelt sessions, with the objective of gathering for the first time the Spanish-speaking people interested in the subject: mostly scholars but also people working in community development planning. Because of the poor command of oral English in the Spanish-speaking world, this type of meeting allowed people interested in SNA to become in touch with the field and develop a community. (Three more *Mesas Hispanas* were celebrated during later Sunbelts in Budapest, Cancun and Portoroz, Slovenia).

Participants at the Sitges *Mesa* agreed to start a listserv, REDES. To aid this, Steve Borgatti, then president of INSNA, made it the possible to base this listserv at Boston College. In only one month, the REDES listserv achieved 90 subscribers. At the end of 2005, the situation is very different. Now, the REDES listserv is located in the RedIris server (a public service for Spanish universities) and has 450 subscribers. Along with the listserv, the website REDES (www.redes-sociales.net) offers a repository of self-training materials, papers and news on SNA. It gets a mean of about 250 visits per day.

Another important milestone is the launching of the electronic Journal, *Redes - Revista Hispana para el Análisis de redes sociales* (http://revista-redes.rediris.es) in January 2002. By the end of 2005, the journal *Redes* had published 9 issues with 45 articles – some of them translations of American and European scholars (such as Valente, 2005). Its website has about 1500 visits daily. This journal was inspired b the online *Journal of Social Structure* (http://www.cmu.edu/joss/) and, with the support of the UAB and other institutions, some special volumes have also been printed.

There is other publishing activity. For example, in 2003, Isidro Maya Jariego (Social Psychology, University of Sevilla) edited a special issue of *Araucaria* devoted to Stanley Milgram, including the first translation into Spanish of his seminal article "The small world problem". Additionally, other articles in *Araucaria* were dedicated to policy networks as well as to bibliographical sketch of Larissa Adler Lomnitz, the pioneer anthropologist in Spanish-speaking network studies. The journal *Empiria*

(UNED, Department of Sociology I) has recently issued a special volume on SNA edited by Carlos Lozares and José María Arribas (2005).

As in the English-language listserv, SOCNET, the REDES community is diverse, with scholars, students, managers and NGO workers (mostly in the community development area) spread throughout Spain, Portugal and Latin America. As in SOCNET, the academic fields represented are mainly from the social sciences (including economics), but also from physics, bibliometrics and computer science.

SNA is currently taught at the graduate program in sociology at the University of Barcelona and the University of Alicante, in the graduate program of sociology and social and cultural Anthropology at the UAB (a joint course by Carlos Lozares and José Luis Molina, with five editions until now). Several universities include SNA in their graduate and undergraduate courses about research methods, including the University of Barcelona, University of Girona, University of Oviedo, and Complutense University. SNA is also present in the two-year Master's program, *Tècniques d'Investigació Social Aplicada* in Barcelona (3 editions), and in the annual workshop in Sevilla (three editions) organized by Isidro Maya Jariego. Molina (2001) and Requena (2003) have provided some introductory or reference books, with Requena's including a compilation of 16 classical SNA articles translated into Spanish.

As a sign of its growing institutionalization., SNA was identified by the Spanish authorities in the *Plan Nacional de I+D 2004-2007* (2004) as one of the areas targeted for research. Twelve doctoral dissertations have been written so far, with several more to be defended in the next years.

**Areas of Development**

The area of *complex networks* (applied to a variety of fields as ecology, linguistics, cancer research) is headed by the physicist and biologist Ricard V. Solé (University Rovira i Virgili, Barcelona and the Santa Fe Institute, USA) and the researchers at the Complex Systems Lab (http://complex.upf.es). They have published dozen of articles in English in prestigious scientific journals such as *Nature* and *Science*. Another physicist, Albert Díaz-Guilera from the University of Barcelona is working with colleagues such Pastor-Satorras, from the UPC, Barcelona on algorithms for community detection (Guimerá *et. al*, 2002, Boguñá *et. al.* 2004, Arenas *et. al.* 2004) and communication in complex networks.

In economics, the social capital literature has renewed the interest in neo-institutionalism as a way to advance beyond the neoclassical paradigm. The network perspective allows the operationalization of social variables (as, for example, social capital in an industrial district) and it is starting to be accepted by economists. Jaume Guia (2000) from the University of Girona and his students and colleagues are working in this direction, as are other young economists (e.g., Casanueva, 2003; Semitiel & Noguera, 2004). The work of statisticians such as Coenders (2005) and García Muñiz (2003) from the University of Oviedo also deserve to be mentioned.

Bibliometrics is another area of research. Thanks to the work of the Scimago Group (http://www.scimago.es/), based at the University of Granada, Félix Moya-Anegón and his colleagues have provided an *Atlas of Science* in Spain and Latin American countries. This *Atlas* combines network analysis of co-authorship with network visualization as a user interface. The scholars are currently extending their analysis from institutions to authors and research groups. A growing group of computer scientists are related to this area, as they provide ways to visualizing the scientific network of collaborations (de la Rosa *et al*, 2005). An earlier work in this field can be found in Molina *et al*. (2002).

In sociology, Josep A. Rodríguez (University of Barcelona) and his research group Poder y Privilegio (http://www.ub.es/epp/) are working on the representation of large cluster of firms and institutions in Spain, Europe and elsewhere. Also in sociology, Lozares (2000), Martí (2000) and Verd *et al*. (2000a, 2000b) have made interesting contributions to the network analysis of discourse. A special case is Ainhoa de Federico, a young sociologist now professor at the Université de Lille I (France) who has done interesting work studying evolving networks of friendship among the Erasmus students in Europe (2004). She has acted as an active broker between REDES and French and Dutch scholars.

Another emergent area of research is personal networks and communities, an attempt to use personal networks measures of composition and structure as independent variables for a variety of outcomes, such as acculturation, ethnic identification, health or patterns of mobility. Isidro Maya Jariego (US) and José Luis Molina (www.egoredes.net), with the support of Chris McCarty (University of Florida) and his Egonet software (http://www.mdlogix.com/egonet.htm), are currently developing

research in this area (Maya Jariego, *et. al.*2004, 2005; Molina, 2005; McCarty *et. al.* 2005).

Finally, SNA has the potential for developing social theory. Pizarro (2000, 2004) and Lozares (2003, 2006) are making contributions to understanding social structure by taking social interactions as a point of departure and re-elaborating the ideas of Simmel (1922), Nadel (1957) and Bourdieu (1977), among others.

The growing number of collaborations with American (Borgatti, 2003, 2005; McCarty, 2005) and European scholars (Snijders, Brandes) in the last few years are another sign of the maturation of SNA in Spain and, I hope, the basis for an even more active contribution to SNA and social theory.

## References

Arenas, A., L. Danon, A. Díaz-Guilera, P.M. Gleiser and R. Guimerà (2004). "Community analysis in social networks", *Eur. Phys. J. B* 38, 373-380.

Boguñá, Marián; Pastor-Satorras, Romualdo, Díaz-Guilera, Albert & Alex Arenas (2004). "Models of social networks based on social distance attachment", *Physical Review* E 70, 056122.

Borgatti, Stephen P. & José Luis Molina (2003). "Ethical and Strategic Issues in Organizational Social Network Analysis", *The Journal of Applied Behavioral Science,* Vol. 39 (3), September (16-45).

- (2005). "Toward Ethical Guidelines for Network Research in Organizations", *Social Networks*, 27 (2), 107-117.

Bourdieu, Pierre (1977). *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.

Casanueva Rocha, Cristóbal (2003). "Relaciones estratégicas entre pymes: contraste de hipótesis empresariales mediante ARS", *Redes.Revista hispana para el análisis de redes sociales*, Vol.4, #4, jun.

Coromina, L. & Coenders, G. (2005). "Reliability and Validity of Egocentered Network Data Collected via Web. A Meta-Analysis of Multilevel Multitrait Multimethod Studies". *Social Networks*, In press.

de Federico de la Rúa, Ainhoa (2004). "L'analyse longitudinale de reseaux sociaux totaux Avec Siena - methode, discussion et application", *Bulletin de Méthodologie Sociologique,* October, N. 84.

de la Rosa Troyano, Fco. Fernando; Martínez Gasca, Rafael ; González Abril Luis y Francisco Velasco Morente (2005). "Análisis de Redes Sociales mediante Diagramas Estratégicos y Diagramas Estructurales", *Redes. Revista hispana para el análisis de redes sociales*, Vol.8,#2.

Díaz, Aurelio, Barruti, Mila, Docel, Concha (1992). *Les lìnies de l'Exit? Naturalesa i extensiò del consum de cocaína a Barcelona*. Barcelona: Laboratori de Sociologia-ICESB, Ajuntament de Barcelona.

García Muñiz, Ana Salomé; Ramos Carvajal, Carmen; Álvarez Herrero, Rubén; Fernández Vázquez, Esteban ( 2004). "Estimación y evaluación de Modelos estructurales centro-periferia", *Redes. Revista hispana para el análisis de redes sociales* vol.6, #5, Jun./Jul.

Guia Julve, Jaume (2000). *Implicaciones del Capital Social para la Ventaja Competitiva de la Empresa en un Contexto Evolutivo*. Tesis doctoral. Universitat Jaume I.

Guimerà R. Danon, L.; Díaz-Guilera A.; Giralt, F; Arenas, A. et. al. (2002). "The real communication network behind the formal chart: community structure in organizations", *7th Granada Seminar on Computational and Statistical Physics* (September).

Herrero, Reyes "La terminología del análisis de redes. Problemas de definición y de traducción", *Política y sociedad*, (33) 199-206.

Lozares, Carlos (1995)."La teoría de redes sociales", *Papers, Revista de sociología*, (48) 103-126.

- (2000). "El discurs reticular, més enllà de la classificació", *Revista Catalana de Sociologia,* 11: 183-9.

- (2003). "Valores, campos y capitales sociales", *Redes. Revista Hispana para el Análisis de Redes Sociales*, Vol.4,#2, jun.

- (2006). "Valores, campos y capitales", *Redes. Revista Hispana para el Análisis de Redes Sociales. Special Issue.* In press.

Martí, J. (2000) *Formació i ocupació en el discurs dels treballadors. Una proposta metodològica.* Universitat Autònoma de Barcelona, Departament de Sociologia. Tesis Doctoral.

Maya Jariego, Isidro (2003). "El mundo es un pañuelo: la técnica Small-World de Milgram", *Araucaria. Revista Iberoamericana de Filosofía, Política y Humanidades*, 5 (10), 3-67.

- (2004). "Sentido de comunidad y potenciación comunitaria", *Apuntes de Psicología*, 22 (2), 187-211.

Maya Jariego, I. & Holgado, D. (2005). "Lazos fuertes y proveedores múltiples de apoyo: comparación de dos formas de representación gráfica de las redes personales", *Empiria*, 10 jun-dic.

McCarty, C.; Molina, J.L.; Aguilar, C. & Laura Rota (2005). "Personal network visualization as an aid for qualitative interviews", *Field Methods*, in Press.

Molina, José Luis; Muñoz Justicia, Juan M. y Miquel Domenech (2002). "Redes de publicaciones científicas. Un análisis de la estructura de coautorías". *Redes. Revista Hispana para el Análisis de Redes Sociales* Vol. I. #3 <http://revista-redes.rediris.es/>.

Molina, José Luis, (1995). "Análisis de redes y cultura organizativa: una propuesta metodológica", *REIS*, (71-72) 249-263.

- (2000). "L'organigrama informal a les organitzacions. Una aproximació desde l'anàlisi de xarxes socials", *Revista Catalana de Sociologia* 11 (65-86).

- (2001). *El análisis de redes sociales. Una introducción.* Barcelona: Edicions Bellaterra.

- (2005). "El estudio de las redes personales: contribuciones, métodos y perspectivas", *Empiria* 10, jun-dic.

Nadel, S.F. (1966 [1957]). *Teoría de la estructura social* [*Theory of social Structure*]. Madrid: Guadarrama.

Pizarro, Narciso (1990) "Teoría de redes sociales". *Suplementos Anthropos,* 22: 146-142.

- (1998). *Tratado de metodología de las Ciencias Sociales*. Madrid: Siglo XXI.

- (2000). "Regularidad relacional, redes de lugares y reproducción social", *Política y sociedad* 33 (167-198).

- (2004). "Un nuevo enfoque sobre la equivalencia estructural: lugares y redes de lugares como herramientas para la teoría sociológica", *Redes. Revista hispana para el análisis de redes sociales*, 5, #2.

Requena Santos, Félix (1989). "El concepto de red social", *Revista española de investigaciones sociológicas,* 48 (137-152).

- (1991a). "Redes sociales y mecanismos de acceso al mercado de trabajo", *Sociología del trabajo*, 11 (117-140).

- (1991b). *Redes sociales y mercado de trabajo. Elementos para una teoría del capital relacional.* Madrid: Centro de Investigaciones Sociológicas & Siglo XXI.

- (1993). "Ítems de redes personales para encuestas de masas", Universidad de Málaga.

- (1994a). *Amigos y redes sociales*. Madrid: Centro de investigaciones sociológicas & Siglo XXI.

- (1994b)."Redes de amistad, felicidad y familia", *Revista española de investigaciones sociológicas*, 66 (73-89).

- (1995). "Determinantes estructurales de las redes sociales en los hombres y las mujeres", *Papers, Revista de sociología*, 45 (33-41).

- (1996). *Redes sociales y cuestionarios*. Madrid: Centro de investigaciones sociológicas & Siglo XXI.

- (2003).*Análisis de Redes Sociales: Orígenes, Teorías y Aplicaciones*. Madrid: CIS.

Rodríguez, Josep A.(1993). "La Sociología Académica", *Revista española de investigaciones sociológicas,* 64.

- (1995). *Análisis estructural y de redes.* Madrid: Centro de investigaciones sociológicas & Siglo XXI.

Semitiel García, María & Pedro Noguera Méndez (2004). "Los Sistemas Productivos Regionales desde la perspectiva del Análisis de Redes", *Redes. Revista hispana para el análisis de redes sociales, v*ol.6, #3, Jun./Jul.

Valente, Thomas W. (2005). "El juego de la red de difusión". *Redes. Revista hispana para el análisis de redes sociales*, 8, #4.

Simmel, Georg (1955 [1922]). *Conflict and the Web of Group-Affiliations.* Glencoe, IL: Free Press.

Verd, J.M.; Lozares, C.; Martí, J.; López, P. (2000a). "Aplicació de les xarxes socials a l'anàlisi de la formació invisible en l'empresa", *Revista Catalana de Sociologia*, 11: 87-104.

Verd, J. M.; Lozares, C. (2000b) "La teoria de xarxes socials aplicada a la interpretació d'entrevistes narratives. Una proposta". *Revista Catalana de Sociologia,* 11: 191-6.

Villasante, Tomás R. (1998). *Cuatro redes para mejor-vivir* . Buenos Aires: Lumen-humanitas.

- (2000). "Algunas diferencias para un debate creativo: abriendo una etapa para el Network Analysis", *Política y sociedad*, 33 (81-95).