BRIDGING SOCIAL AND GEOGRAPHICAL SPACE THROUGH NETWORKS

ABSTRACTS

WORKSHOP, DECEMBER 2–3, 2016
Workshop
December 2–3, 2016

Bridging Social and Geographical Space through Networks

Excellence Cluster Topoi
(B-4) Spatial Identity

Venue
Topoi Building Dahlem
Hittorfstraße 18
14195 Berlin
represent a broad umbrella for a number of approaches to the study of interaction, having acquired considerable importance in recent times. They are a powerful metaphor for understanding social interaction even when not explored through formal methods. Among the latter, two main types of approaches stand out: quantitative spatial modelling and social network analyses. The former refers to notions of geographic space as intended by a variety of disciplines including Landscape Archaeology and Geography, e.g. through GIS-based approaches; the latter relates to the analysis of social relations and their patterning with an emphasis on topology rather than physical space.

In this workshop, invited speakers will discuss and highlight the potential for integrating these research directions, with an aim to identify common grounds for developing new interdisciplinary insights. In particular, presentations will address the following points:

- Conceptualisation of space, through the use of networks, both as a rigorous methodology and as a broader metaphor of human activity
- Applications of Social Network Analysis
- Examples of the use of geographic networks
PROGRAMME

FRIDAY 2ND DECEMBER

14:00 REGISTRATION

14:30 WELCOME
Michael Meyer, Berlin

14:45 INTRODUCTION
Helen Dawson, Berlin
Francesco Iacono, Cambridge

15:00
David Beresford-Jones, Cambridge
Paul Heggarty, Jena

How Network Analysis Can Rewrite Our Past – in Archaeology, Genetics and Linguistics

15:30
Silke Vanbeselaere, Leuven

Theban Witnesses and Contractual Networks

16:00
Francesca Fulminante, Roma
Alessandro Guidi, Roma
Sergi Lozano, Tarragona
Ignacio Morer, Barcelona
Luce Prignano, Barcelona

Why Rome and not Veii. Analysing Geographical Networks in Etruria and Latium between the Final Bronze Age and the Archaic Era

16:30 DISCUSSION

17:00 COFFEE BREAK

17:30
KEYNOTE LECTURE
John Edward Terrell, Chicago

Social Networks and Geographic Systems: Models and Hypothesis Testing in Archaeology and Anthropology

19:00
RECEPTION
9:30
Oliver Nakoinz, Kiel
‘Interaction’ Bridges Social and Geographical Space - A Case Study on Integrated Network Studies from the Early Iron Age in South-West Germany

10:00
Pau de Soto, Southampton
The Mercator-e Project. A New Diachronic Analysis on Historical Transport Infrastructures in the Iberian Peninsula

10:30
Francesco Iacono, Cambridge
Joining the Dots: Social Approaches to Networks in Archaeology (with a Case Study from Bronze Age Southern Italy)

11:00 COFFEE BREAK

11:30
Pascal Arnaud, Lyon
Building Trust and Maritime Networks of the Roman Empire

12:00
Helen Dawson, Berlin
Interaction and Insularity in the Bronze Age Central Mediterranean: A Network Approach

12:30
Hagit Nol, Hamburg
New Elites, Old Networks? A Case Study from Central Israel, the 7th-10th Centuries AD

13:00 DISCUSSION

13:30 LUNCH

14:30
Silvia Polla, Berlin
Rural Socio-Economic Networks. Farms, Villages and Churches in Late Antique North Africa

15:00
Mark Golitko, Indiana
John Edward Terrell, Chicago
James Zimmer-Dauphinee, Arkansas
Cultural Diversity as Network Structure: A Multi-Model Analysis of New Guinean Bone Daggers

15:30
Sarah De Nardi, Durham
Affective Networks: Local Geographies and the More-Than-Representational

16:00 DISCUSSION

16:30 COFFEE BREAK

17:00 GENERAL DISCUSSION & CLOSING REMARKS

19:00 CONFERENCE DINNER FOR SPEAKERS
My mother used to say you can’t have an argument with someone if you don’t at least agree on a few things. She encouraged us to look for those shared commonalities, although not necessarily so that we could be argumentative and disagreeable. In science, as in life, such agreeable things are often called assumptions.

Here is a familiar example. Since the last war, biological evolutionists and social scientists have argued a lot about how and even whether natural selection has shaped what it means to be human. Such debate has generally taken it for granted that competition is the name of the game of life, and cooperation is an exception to the rule of Darwinian logic running counter to the probabilities of game theory.

Given these two assumptions, there has long been consensus at least in evolutionary biology that understanding cooperation as a biological and social phenomenon demands a special kind of mathematical end run around competition to account for it, a clever ruse called inclusive fitness. Many have put their reputations on the line also for the claim that genes are selfish. Some have even gone further and have ironically insisted that competition between groups rather than between individuals can strengthen within-group cohesiveness and competitive prowess.

While I will not argue the case here, these assumptions are unnecessary. Counter to them is the following fundamental proposition. As a species, we are quintessentially social creatures, so much so that the precondition of human survival is now and always has been the individual plus his or her relationships with others. As Matthew Lieberman at the University of California, Los Angeles, has stated the proposition: “we think people are built to maximize their own pleasure and minimize their own pain. In reality, we are actually built to overcome our own pleasure and increase our own pain in the service of following society’s norms.”
Many plausible explanations have been proposed for why we are so social. The evolutionary bottom line, however, is a telling one. As the psychologists Lane Beckes and Jim Coan have argued, being social gives us a decided advantage in the struggle for existence—a social baseline of emotional support and security. So much so, that perhaps far more than most of us realize, our human connections with others are in effect an extension of the way the human brain interacts with the world. I would also add that being social means we often can get things done we couldn’t do on our own.

Scientists today are grappling with some of the larger implications of this view of human life. For instance, the late anthropologist Fredrik Barth once remarked that practically all social science reasoning relies on the commonsense conviction that our planet is populated by discrete groups of people that can be variously labeled as populations, ethnic groups, tribes, societies, cultures, or races. This misunderstanding of human diversity—often called typological or categorical thinking—takes it as self-evident that things naturally come in different kinds, or types, that can be labeled as such. From this perspective, the words we use to describe things are like empty containers into which we can put things once we have grasped the essential “meaning” of these verbal containers.

Categorical thinking, of course, often makes practical sense given that the human brain has evolved to deal with reality in the interests of Darwinian self-preservation. After all, taking time to ponder the complexities of life when deciding whether to run away from danger or stay and try to hold your ground can be a matter of life or death. But there is also history and politics behind the kind of atomistic individualism that is popular, for instance, in American folklore and electioneering rhetoric. The popular belief, for example, that we are all by nature inherently selfish creatures can be traced back in part to 17th and 18th century electioneering rhetoric. The popular belief, for example, that we are all by nature inherently selfish creatures can be traced back in part to 17th and 18th century arguments promoting the intrinsic worth of every individual and the assertion that we are all naturally entitled to act in our own self-interest free from interference by others.

However politically and perhaps philosophically expedient such anti-social individualism was during the Enlightenment, nowadays it would be hard – even perverse – to turn a blind eye to the increasingly evident truth that ours is a world of multiple and complex interrelationships and dependencies, not a world of self-contained entities and self-determined outcomes. As two of my colleagues and I argued two years ago in Scientific American, there is now another cognitive revolution in the making, one much in keeping with the previous intellectual upheavals triggered by Copernicus and Darwin. Modern research in anthropology, sociology, cognitive psychology, and neuroscience is showing us that science and philosophy today must grapple with the implications of network perspectives on human agency and diversity.

However revolutionary or not, networks research is now unquestionably a vital force in modern science, politics, marketing, and numerous other more specialized data-dependent applications. It is reasonable to ask, therefore, whether archaeologists, historians, and others who are chiefly interested in understanding how the past has been both prelude and progenitor of the present should climb on board the modern networks revolution. And if they elect to do so, how they can make the ride more than an intellectual fad or career strategy.

Today I would like to talk about some of the underlying assumptions we often have as archaeologists about what we do and why that may be holding us back from contributing successfully as we could to understanding how the world works and our place in it. Specifically but not solely I want to explore the following observations using some of my own work to illustrate the points I want to make.

1. Archaeology doesn’t have to be a kind of historical reverse engineering, i.e., what we do doesn’t have to lead to historical reconstructions in a storybook sense (Terrell 1990; Clark and Terrell 1978).


3. Archaeology as an intellectual and scientific pursuit cannot go it alone when it comes to finding the “actual” among the “possible,” to borrow François Jacob’s useful way of talking about the fundamental goal of modern science.

Citations


Trust is a necessary ground not only for trade, but also for any kind of transaction between people active in distant areas, who did not always know each other.

Law, altogether with — or according to — customary practices has produced a significant set of norms for the protection of performers of maritime trade, whose liability was preserved through space.

Transactions were obviously widely facilitated speeded up when partners knew each other or were introduced to each other by people who knew each other. Mutual knowledge, based upon sustainable relationship was essential: the routine of routes or markets was a ground for this mutual knowledge. It is entirely opposite to the cabotage pattern of trade that long prevailed in modern historiography.

Fame was also central to trust. In some inscriptions it happens that individuals involved in commerce or trade do mention this fame as a title of glory. Fame does not imply direct knowledge. It allowed to conclude transactions at long distance through samples sent in advance, including transportation, and significantly impacted transactional costs.

Gridding space with a network of people relating to each other settled in various places could be a key to trust. These networks could rely on family or other forms of association or brotherhood. Family must be understood in its wider senses (including slaves and freedmen, if not all the latter) is likely to have played an important role in building a double trust: external trust because fame was attached to the whole family from a generation to another, like a transmittable capital; internal because mutual trust was part of the structure of the family.

Various forms of societas could lead to the same results, including firms, guilds, or weaker forms of associations. This paper will also analyse the role of organized diasporas of fellow-citizens.

Last, but not least, belonging to the same thiasos or being worshippers of the same universal religion or sect (Great Mother, Isis, Mithra, Christianity, Gnosis) not only created very strong links and a faithful ground for trust. New recruits were usually co-opted within the networks of previous members and were in straight relationship with trades.
Sarah De Nardi

Affective Networks: Local Geographies and the More-Than-Representational

Affects theory suggests that we are all connected up as complex forces through the identities we enact in the real world via experiences, affects, people, places and things. Affective networks permeate the social, the historical, the geographical and the political in myriad ways.

In this talk I focus on affective events as a network connecting up random, ostensibly disparate links (relationships or interactions) between tangible and intangible, human and more than human agents in society. I explore these ideas through the prism of memory and identity, two of the affective agents shaping networks of tangible and intangible nodes such as events, places and things, big and small. ‘Events’ cannot be isolated from their socio-cultural context in which they unfold, fuelled by and growing through storytelling, diffusion, gossip etc. By approaching the politics of affect with ideas taken from social network analytics, we might better comprehend social dynamics around commemorative politics, place-making practices and the historical imagination of communities. I shall attempt to contextualise these notions through examples drawn from my fieldwork bridging cultural geography and oral history in Italy, the Northeast of England and Pakistan.

Helen Dawson

Interaction and Insularity in the Bronze Age Central Mediterranean: A Network Approach

This paper will outline the initial phase of my new project entitled “Central or Marginal? Networks of Interaction in the Central Mediterranean Bronze Age”. The aim of this project is to define phases of interaction and exchange in the Bronze Age Mediterranean (ca. 2500-900 BC), with a special focus on the coastal and island communities around southern Italy and Sicily. By the end of the Bronze Age, an extensive web of interactions tied communities across the Mediterranean from east to west; however, those in the central Mediterranean are traditionally considered to have been marginal both in an economic and a cultural sense, often merely exposed to outside influences. In fact, island and coastal communities have a potential advantage in terms of being able to initiate and maintain networks: the prosperity and continuity of the networks do not stem directly from a distant core area but rather they are facilitated by these “marginal” groups themselves. As an alternative approach, I focus on these communities in their own right and aim to explore how they developed by capitalizing on their location and resources through networks of social, cultural, and economic interaction. Network analysis is used to identify and model the development of connections shared by key sites at the local, regional, and inter-regional level. In turn, these three levels of interaction will be used to clarify changing meanings of insularity with respect to issues of centrality and marginality.
The Mercator-e Project. A New Diachronic Analysis on Historical Transport Infrastructures in the Iberian Peninsula

The impact of the transport infrastructures in the development of societies and territories is one of the most current topics in the European policies. The Mercator-e project is designed to analyse the diachronic social, political and economical repercussions of the transport infrastructures during several periods of the Iberian Peninsula. An integrated approach joining multi-proxy analysis (SNA applied to the network centrality, TNA to analyse transport costs & times, demography studies) and the study of archaeo-historical sources will be applied. Analysing the transport communication networks in various time scopes will offer to the academic community new quantified data about the infrastructures morphology and their impact in the political and economical evolution of these territories.

This project offers a new approach to the study and knowledge of the historical infrastructures. From the use of the Network Analysis to study the infrastructures, a set of completely new data is being generated to understand and visualise the transport evolution and the evolution of the territorial configuration. This project will provide a breakthrough in the analysis of transport in big territories. The high digitalisation detail and the diachronic study will offer outstanding results. The Mercator-e methodology takes into account elements such as highly digitised communication networks, historical vehicle characteristics, changes in means of transport or the topography to make more complex and real calculations. Mercator-e will provide a new perspective on ways to quantify Historical Trade and Transport.

Although the Mercator-e project is just at its beginnings, this session will focus on the application of social network analysis to the transportation systems and in the understanding of the impact of network changes in the different Iberian societies (i.e. urban demographic evolution, territorial religious configurations).

Cultural Diversity as Network Structure: A Multi-Model Analysis of New Guinean Bone Daggers

Much anthropological and archaeological analysis is predicated on the conceptualization, identification, and explanation of social boundaries between human groups or societies. Cultures, ethnicities, languages, and other forms of human identity definition are often treated as the basic unit of analysis for examining both modern and ancient human behavior. Here, we apply several modelling approaches to the analysis of bone daggers from the island of New Guinea, including phylogenetics and cladistics, social network analysis derived models and methods, and geographical modelling of plausible interaction patterns to explore the connection between material cultural patterning, language, and inter-community connections. While these different approaches do not produce identical results, we find that in common with earlier studies of New Guinean material culture, stylistic and technological diversity primarily reflects likely interaction patterns rather than linguistic boundaries. We argue that network analysis represents a generalizable and flexible approach to exploring human diversity, but one which is currently limited by a lack of suitable anthropologically informed baseline models.
Paul Heggarty and David Beresford-Jones

How Network Analysis Can Rewrite Our Past – in Archaeology, Genetics and Linguistics

This talk brings together archaeological, genetic and linguistic data to explore how network analyses can rewrite cross-disciplinary hypotheses on our past, and force individual disciplines to rethink their traditional models and interpretations. We start out from a whistle-stop tour of example applications in these disciplines. In linguistics, for instance, network analysis has a long pedigree, but has only truly come of age in recent decades. Illustrations range across the globe: from early European history (the fate of Latin and the origins of English) to sub-Saharan Africa, Island South-East Asia, and above all our case-study on the ‘pristine civilisation’ of the Andes...

The greatest surviving indigenous language family of the Americas, Quechua, has long been mistakenly attributed to the Incas, rather than their predecessors. Network analyses of Quechua undermine the traditional ‘family tree’ model of its divergence history, and revolutionise how that language history relates to archaeology and genetics. The lessons cut both ways, however, and challenge any a priori expectation that network-like results or interpretations must always be more realistic on all levels.

For the Quechua linguistic network turns out to clarify long-standing archaeological debates about the nature of the Wari Middle Horizon, centuries before the Incas. Undermining ideas of Wari as a trading network, it bolsters instead interpretations of a centralised, expansionist empire with significant demographic as well as cultural legacies — including Quechua.

The highly admixed and network-like genetic picture in the Central Andes, meanwhile, also closely echoes the long-standing and powerful to-and-fro in the archaeological record. Both also fit with linguistic signals on a separate level: of uncommonly powerful convergent (as well as divergent) phenomena throughout prehistory. Those bear witness to great mobility — counter-intuitively driven, rather than hindered, by the extraordinary topographical context of the Andes.

Francesco Iacono

Joining the Dots: Social Approaches to Networks in Archaeology (with a Case Study from Bronze Age Southern Italy)

Network approaches of the most diverse kind have, over the last decade, acquired considerable importance within archaeology, gradually becoming a popular choice in the toolbox for the analysis of the archaeological record. Yet, despite the proliferation of applications and methodologies, the use of networks in archaeology has often failed to effectively incorporate the insights of social theory, resulting sometimes in explanations directly borrowed from sociology and/or social physics. In this paper, following a critical overview of previous network perspectives and the social implications they underpin (whether consciously or not), I will try to illustrate the advantages of an in-depth integration of networks with more traditional social theory and how this can improve our understanding of past social realities.

I will support my points through a case study based on my research on the Southern Italian Bronze Age. Through the diachronic analysis of a number of subsequent networks of interaction, identified on the basis of shared decorative features on handmade pottery, I will try to demonstrate how simple formal graph-theoretical methods can highlight unexpected aspects of ancient societies, disclosing what we might define as the ‘social logic of interaction’.
Why Rome and not Veii. Analysing Geographical Networks in Etruria and Latium between the Final Bronze Age and the Archaic Era

Communication infrastructures are emerging complex structures: they are not completely random, neither are they entirely planned according to a predefined project (especially when there is no unified political framework).

Transportation networks can be regarded as an epiphenomenon of social interactions and interactions between societies and environments. At the same time, they influenced the development of past societies (they enhance trade dynamics affecting the prosperity of a civilization) and they encouraged increased complexity (e.g., emergence of urbanism). There is a feedback loop.

By analysing and comparing rivers and terrestrial routes communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archaic Era (11th/10th-5th century BC) with a newly developed Network approach, this paper shows the similarities and differences between the two regions and helps explain why in the end Rome and Latium vetus prevailed.

‘Interaction’ Bridges Social and Geographical Space - A Case Study on Integrated Network Studies from the Early Iron Age in South-West Germany

Network approaches became fashionable in archaeology in the last decade producing real scientific advances. This contribution focuses on the integration and generalisation of network approaches instead of promoting particular aspects. Usually, there is a polemic discussion, in which network approaches are described as much more advanced and useful than other approaches. In particular, “grouping” approaches are seen as an obsolete approach. In fact both approaches are equivalent models focussing on different facets. Both models can be used for developing as well as investigating structures. In the first case, we have to ask which type of pattern existed in the past and hence which model is better representing the observations. Simply assuming one model a priori is definitely not a useful solution. In the case of research, we have to adapt the approach to our research question. Although both approaches cover some common ground, they are sensitive to different aspects. In addition to this, network approaches have two different roots, one in geography and one in sociology. While they use similar concepts and terminology, the theory behind and the methods are different, owing to their different objectives. Nonetheless, networks are a first step toward an integration of social and geographic space.

The different approaches complement each other and they are tightly connected by the key concept of ‘interaction’. In network analysis, the nodes might be arbitrary but the edges are defined by certain relationships, which usually is interaction between the nodes. In the case of grouping approaches, such as archaeological cultures, the groups are defined by similarities and a certain level of interaction inside the groups is assumed. Interaction analysis is the natural generalisation of the different approaches, which is reached by a shift of the focus from certain structures such as networks and groups to what is the driving force in the development and change of these structures, i.e. the interaction. This shift of focus enables us to bridge the gap between social, geographic and economic networks. A common set of methods can be applied to a system of certain interaction objects, which form different networks and structures in different spaces.
This paper will illustrate the general interaction approach through a case study on Early Iron Age in South-West Germany. Network analysis and other approaches are combined in a work-flow, which addresses different aspects of mainly spatial structures. Social structures, interaction systems, exchange, personal networks, transportation and other topics are dealt with on three spatial levels, the supra regional, the regional and the local level. In each level, structures in social, geographical, economical and cultural spaces can be investigated and will reveal a complex picture of the past. Although this paper is based on more a decade of research, it is still work in progress.

Hagit Nol

New Elites, Old Networks? A Case Study from Central Israel, the 7th-10th Centuries AD

According to the historic narratives, the Late-Roman/Byzantine region of Palestine was conquered by Muslims/Arabs at the 7th century. However, archaeological studies in Israel and Jordan distinguished a change in mobile artefacts only from the middle 8th century. That brought to a dual perception: on the one hand, “continuity” until the 8th century, and on the other, a cultural generalization of the 8th-10th/11th centuries. The current research focuses on one region in Israel (between Tel-Aviv, Ashdod and Ramla), which yielded 360 archaeological coordinates. It combines etic and emic approaches, employing cross references and mapping of the archaeological detailed data for the first period (with an emphasis on the installations), and an analysis of contemporary terminology in Arabic, Hebrew and Greek for the latter. Its aim is interpreting changes within the bigger time frame (7th, 8th, 9th, 10th centuries), involving settlement “types” (city, village, fortress), economic hubs and social/political/economic networks. The research questions are: what are the differences between pre- and post-7th-century settlements? Did the new settlements (such as Ramla) establish their own trade routes and distribution networks or used former routes? Were the Christians (and Jews and Samaritans) in charge of wine production or any other industry? Can we detect networks of religious/cultural/ethnic/political nature? How to interpret the unique artefacts which can be found at excavations all over the Islamic world (e.g. steatite bowls, copper-alloys vessels, bone dolls)?
Rural Socio-Economic Networks. Farms, Villages and Churches in Late Antique North Africa

The well-preserved landscape of Late Antique North Africa offers a suitable case study for analysing the materiality of past socio-economic networks. Focusing on the Dougga region (High Tunisian Tell) under this lens, this paper will consider, on the one hand, the spatial relationship between rural sites in their topographic and environmental settings, and between sites and regional road systems. On the other hand, it will use the potential of the rural ceramic surface assemblages and the related consumption patterns as an indicator of inter- and intra-regional networks.

Theban Witnesses and Contractual Networks

Inspired by Padgett and Ansell’s seminal paper on the Medici, I aim to explore different types of relationships attested in ancient Theban property contracts and compare the resulting networks. A substantial amount of research has been undertaken into the Theban scribes and contractual parties, but witnesses have often been left out. Our aim is to tackle the issue of who these witnesses were, what status and connections they had in the Theban community and how they were chosen. Based on historical research of scribal traditions in the Ancient Near East, the research now includes information that is often overlooked.
Venue
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