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5 Criticisms and frequently asked questions

Social network analysis is a collection of concepts, measures, and techniques for relational analysis. It is an approach that is specifically designed to grasp the most important features of social structures and it is unrivalled in this task. It can be used to explore social relations themselves and also the cultural structures of norms and ideas that help to organise those relations in conjunction with material circumstances. The various applications reviewed in Chapter 4 have demonstrated the ways in which relational and cultural structures can be investigated with a few simple network concepts. Theories of social structure inform and sustain the methods of social network analysis.

The social world, however, consists of more than just social structures (Scott 2011a), and social network analysis itself cannot reach beyond the structural concerns for which it was designed. Many of the issues that arise in the study of social action require a totally different set of theoretical ideas: ideas concerning motives, intentions, rationality, emotionality, and subjectivity together with the consequences, intended and unintended, to which different types of action lead. Action theories therefore

require different methods and techniques—methods of frame analysis and interpretation, for example—and a crucial question in sociology concerns the complementarity or opposition between theories of structure and action. My own view is that they are not contradictory or alternative to each other but are complementary. Indeed, I have shown in Chapter 2 that dynamic models of network development rest upon a combination of structural ideas and a theory of action and its consequences.

It is equally the case that cultural analysis involves more than just the analysis of cultural structure. The study of culture rests upon ideas of discourse, ideology, representation, and socialisation that are specific to cultural analysis and require specific methods of their own: content analysis, narrative analysis, ideology critique, and so on. These ideas, too, are complementary to the structural ideas behind social network analysis. A number of works in network analysis have now begun to combine these frameworks together (see, for example, Mische 2007).

Thus, social network analysis is closely linked to structural theories and, as such, comprises one element in a more comprehensive framework of sociological analysis. Action theories and cultural theories, with their associated methods, are complementary within this framework. Social network analysis is limited to its structural concerns, but it is an essential complement to other, equally limited, approaches. The use of social network analysis in particular research projects is likely, therefore, to require the use of a variety of other methods of data collection and analysis. Even in its own territory, social network analysis is likely to involve a multi-method research design, and it is rarely the case that even a predominantly structural study will use social network

techniques alone. This is equally the case with respect to data collection. The collection of data for social network analysis involves methods of data collection that are not specific to it: most particularly, survey methods, ethnographic methods, and documentary methods. An understanding of social structure in the context of the actions of individuals and groups and the cultural contexts in which they live and construct their actions will involve placing social network analysis alongside the other analytical methods appropriate to these areas. These multiple methods of data collection and analysis—both quantitative and qualitative—must be combined in an appropriately devised research design.

These limitations to social network analysis are fundamental, though they are no different from the limitations that apply to any specialised approach. However, some potentially serious limitations have been suggested by critics of network analysis, and these must be considered and answered.

Criticisms and responses

Network analysis, like all social research methods, has been the subject of much criticism by those whose preferences and intellectual concerns lie in different directions. Indeed, social network analysis has, perhaps, received more than its fair share of criticism, and perhaps some of this criticism has been provoked by the overstatements—or even the naivety—of some of its advocates and users. Much criticism, however, is based upon

misunderstanding and misrepresentation. In this section I will address the major criticisms and try to show how much credence should be accorded to them. I will look at six commonly voiced criticisms:

- 1 Isn't it all frightfully new and exciting?
- 2 Isn't it all rather trivial?
- 3 Isn't it all unnecessary?
- 4 Isn't it just pretty pictures?
- 5 Isn't it simply too formal?
- 6 Isn't it very static?

1 *Isn't it all frightfully new and exciting?*

This statement is not so much a criticism as a complete misrepresentation of the history of social network analysis. During the late 1990s, a number of physicists put forward mathematical models of networks that, they held, could be applied widely in social science applications and could fill a huge intellectual gap in sociological understanding. Social scientists, they argued, had simply ignored the fact that people are connected into structures of social relations that can be analysed in terms of their distinctive emergent properties. Thus, this comment was a criticism of the poor intellectual skills of social scientists, who had failed to understand how important were the social networks in which people are involved and had to wait until the physicists came along and showed them how to do relational sociology. This view was enthusiastically taken up by non-social scientists and by journalists and other commentators. Many books and articles appeared and enthused over the 'new science' of social

networks. We live in an increasingly 'connected' world, they argued, and so we require these new techniques if we are to study this new phenomenon.

I have shown in Chapter 2 that social network analysis has, in fact, a long history in sociology, anthropology, and social psychology: a history reaching back to the early days of these disciplines. Even if attention is limited to formal and systematic mathematical approaches, this history stretches back for over half a century. So what, exactly, is going on? Why have physicists and recent commentators not been aware of this history?

It has to be recognised that, to a degree, social network analysts have themselves been culpable. Rather than actively proselytising beyond their disciplinary boundaries, they have simply got on with the job and have carried out their specialised studies. Unless people have read the sociological literature they will not have been aware of the work in social network analysis. This is why those who advocate this 'new' method are so completely wrong. In claiming the critical need for their own approach to sociological questions, they forgot to check whether sociologists had got there first: they simply did not bother to look at any sociology (or, for that matter, any anthropology or social psychology) before decrying the absence of relational concerns in those disciplines (Scott 2011b).

Social network analysis, as practiced by social scientists, may not be new but it is certainly exciting. The critics of social science have got it right on this point at least. I hope that I have shown in Chapter 4 and elsewhere that social network analysis provides powerful and exciting insights into crucially important questions

and that the techniques outlined in this book can help us to explore these.

2 *Isn't it all rather trivial?*

Those who point to the triviality of social network analysis do recognise that this particular specialism exists, but they fail to recognise what it is actually about. The claim is often made these days that sociologists who study social networks ought really to be studying something more important. The study of social networks is seen as concerned with the 'social networking' promoted by management consultants and the use of internet-based 'social network' sites such as Facebook, Twitter, My Space, and LinkedIn. This, many people assume, is what social network analysis is all about.

The first point to make is that these phenomena are, in fact, rather important social phenomena. An increasing amount of communication and interaction is now internet-based and people engage with each other through e-mail, live messaging, and dedicated websites to an ever greater extent. The cyber world is an increasingly important part of all our social worlds. However, social network analysis does not only concern itself with these web-mediated forms of interaction. It is concerned with the whole range of face-to-face and spatially distanced social relations that have always been the principal objects of sociological analysis.

Some critics, even within the discipline, have recognised this point but persist with their criticism of the triviality—or perhaps marginality—of social network analysis. This approach, they argue, is concerned only with the interpersonal relations of

everyday life and cannot be used to investigate more important matters of economic and political structure or the many macro-social features of human life. This criticism is misguided on two grounds. First, the interpersonal and the everyday are every bit as important as the economic and the political. There are no grounds for asserting the triviality or importance of one domain of enquiry over another. Second, social network analysis is able to address economic, political, and macro-social issues. I have illustrated this in Chapter 4, where I showed the long history of research into economic structures of relations that have investigated national economic structures and the structures of global economic systems.

Social network analysis, far from being trivial or concerned with marginal issues, has addressed central social issues across the whole spectrum of the discipline. It is an approach of major significance.

3 *Isn't it all unnecessary?*

This criticism may not see social network analysis as limited to triviality, but it does hold that the findings of social network analysis are lacking in significance. This is the oft-cited 'so what?' criticism of social network analysis. Such critics note the immense time and effort spent on documenting the number and type of ties that link people together into more or less dense chains of connection but go on to ask that the analyst show that these make some difference to how people act or to the outcomes of their actions. Critics claim that everybody knows that such links exist and that anyone, with the appropriate technical skills,

can map them out, but unless it can be shown that people take some account of them or that things are different because of them, then the research findings are merely documents of the obvious and the irrelevant. The most radical of these critics go on to assert that even if the researcher did try to assess the importance of network connections, he or she would inevitably find that they have no importance. All this research is, therefore, completely unnecessary.

It has to be said that much social network analysis has, in fact, remained at the purely descriptive level and has not gone on to assess the significance of the connections for the individuals involved. Some early computer-based research did report measures simply because the available software made them easy to compute: 'if it can be measured then it must be significant' was their assumption. This kind of naïve empiricism also marked early uses of SPSS for survey analysis, where the option 'Statistics all' spewed out an array of statistics that were assumed to be important simply because they were a part of the package. However, this assumption is far from typical. I have argued in Chapter 3 that it is essential that the structural analyst know and understand the concepts that are being used and that he or she can justify them as valid and appropriate. When there is a *prima facie* reason to expect the social relations to have an effect, then a descriptive mapping plays an essential part in the research process. This is typically the case when a project is firmly grounded in an on-going tradition of research in which this significance has been explored or inferred. I have shown in Chapter 3 that there have been good technical reasons why conventional statistical significance tests cannot be used in

social network analysis and that it is only now that appropriate methods of statistical analysis have become available.

The 'so what?' criticism has always carried less weight than its users believe. It is a criticism that could be raised against *any* approach to sociology where there is an absence of accepted theoretical justification or established empirical grounding. Using survey analysis to document the pattern of attitudes held among the members of a group, for example, could be subjected to the same criticism unless the researcher produced a theoretical rationale for the significance of the distribution of attitudes or rehearsed the results of empirical studies. Much survey research is just as descriptive as much social network research, and the fact that the 'so what?' question is raised against one rather than the other smacks more of prejudice than of reasoned argument. Happily, such criticisms are becoming less frequent as social network analysis becomes more established and its research applications can allude to a larger theoretical and empirical framework to legitimate its use.

4 *Isn't it just pretty pictures?*

This is really a variant of the 'so what?' criticism and so can be dealt with briefly. The criticism is particularly applied to studies that concentrate on the display of sociograms rather than the calculation of specific measures. The argument is that drawing a sociogram, however colourful and striking, must still be shown to be a 'real' social factor with distinct causal effects on actions and their outcomes. While the validity of this argument can be recognised, exactly the same considerations are relevant as have been discussed in relation to the larger 'so what?' criticism.

5 *Isn't it simply too formal?*

This criticism implies a dualism between 'structure' and 'action', arguing that the formal clarity of network structure ignores the meanings and definitions through which people construct their social relations. Sociological explanations, they argue, must take account of individual definitions of the situation and must recognise that the particular formal connections discovered by an outside observer are important factors in sociological analysis only if and in so far as they are taken account of by individuals. It is the individuals who interpret social relations that give them their significance. The further conclusion is drawn that particular connections—a directorship, a citation, a friendship—will mean different things to different people and so it is meaningless to treat them all as equivalent and to count them up or use them in formal methodologies.

This is an important criticism if not taken to its extreme. Social relations do vary in their significance for individual actors and it is not at all straightforward to count numbers of friends or to rate one friendship as twice or three times as important as another. However, the difficulty in doing this does not warrant the conclusion that it is impossible. It is always necessary for social researchers to make an informed, expert judgement about the meaning and significance of social relations to individuals, but this must be done on the basis of evidence that warrants the judgement as plausible. Counting, ranking, and valuing relationships for use in social network analysis do not involve making an essential and absolute statement about what the relationship 'really' means to individuals. Use of these procedures is an

attempt to find a plausible and defensible way of transcending individual subjectivity and drawing some general conclusions. It is simply one particular way of undertaking a relational, structural analysis and only if the very idea of structural analysis is rejected can the criticism be upheld in full. I have tried to argue above that it cannot be rejected and that structural analysis has a part to play alongside other approaches to sociology.

6 *Isn't it very static?*

This final criticism has been thoroughly covered already. Critics argue, however, that social network analysis has been static and descriptive because this is all it ever can be. Social network analysis, they argue, simply charts relationships and structures as they exist at a particular time. Even if the critics do not claim that this work is unnecessary, they do claim that it is fundamentally limited and can tell only a small part of the whole story. Social relations are changing all the time and a snapshot picture taken at a particular point might be an extremely poor representation of the social structure at a later time.

This is an important criticism, though it involves a considerable overstatement. It is true that a single cross-section, or even a series of them, is a poor representation of a continually changing social process. It is similarly the case that screen shots give a poor impression of a movie. However, when used with care, descriptive studies can serve as the first step towards more comprehensive accounts. They are the starting point—not the end point—of on-going research. As I showed in Chapter 3, methods better able to grasp dynamic processes and that allow proper longitudinal research to be undertaken are now becoming available and

are being more widely used. We all have to walk before we can run, and the new mathematical concepts and software programs allow the social network analyst to take this further step.

Frequently asked questions

In the first part of this chapter I have looked at some of the principal questions raised by critics of social network analysis, and I have tried to provide some responses to these. In this part of the chapter I turn to the practical questions raised by those who think they might find social network analysis useful but are concerned about their own abilities to use or to understand the techniques required. In most cases, the answers should be apparent from the earlier, detailed discussions, but I have tried to highlight the key issues here. Seven questions recur in practical discussions of how to do a social network study:

- 1 How can I decide who to include as members of my network?
- 2 When do I stop tracing connections among the members of my group?
- 3 How can I decide the relative importance of different kinds of network linkage?
- 4 How can I determine the strength of intensity of a social relation?
- 5 Networks include positive as well as negative relations: does this pose problems for social network analysis?

- 6 Do I need to know a lot of mathematics to use social network analysis?
- 7 What are the ethics of social network analysis; isn't it just a form of snooping and spying?

1 *How can I decide who to include as members of my network?*

This is the issue of the so-called 'boundary problem' in social network analysis. In some cases, the boundaries of a network will be clear and straightforward: the members of a school class or year group, the members of an organisation, and so on. However, groups that may appear to be clearly bounded may actually be indeterminate. It might at first seem obvious who to include as members of a family, for example, but does the 'family' include aunts, uncles, and cousins, what degrees of cousinhood are relevant, and what are the implications of divorce, remarriage, or cohabitation? Can the same definition be used in all cases: does each potential member of the network mean the same thing by 'family'? Boundaries must usually be determined by the informed expert judgement of the researcher and can rarely be decided on the basis of network measures themselves. A sociologist of the family, for example, must decide what, in the light of existing knowledge, makes sense as a definition of the family and so how it is to be bounded. Similarly, an economic sociologist must decide, on the basis of prior research, whether a network of 'top' companies should include 100, 200, or 300 companies. There are, in fact, no easy answers to these questions, but that is true of any sociological question worth asking.

2 *When do I stop tracing connections among the members of my group?*

It is very easy to get carried away and to record long chains of connection: to note down friends of the friends of a worker who are committee members of political parties in which other members are friends of the friends of an employer. This does not necessarily mean that the worker and his or her employer have any significant social relationship beyond the employment relationship itself. As with the boundary question, the investigator must decide on the basis of sociological evidence and conceptualisation when to cut-off the search for relationships. Equally, the investigator him or herself must decide whether relations involving, say, line distances of five, six, or more constitute real social relationships or can be regarded as having a sociological significance. This decision is likely to vary from one type of relationship to another.

3 *How can I decide the relative importance of different kinds of network linkage?*

This is not something that social network analysis itself can resolve for you. Most relationships are complex and involve many different emotions, purposes, and interests: social network analysts describe them as 'multiplex'. Someone may, for example, be simultaneously a friend, workmate, and political collaborator of another, and any separation of 'friendship', 'work relation', and 'political affiliation' is likely to be arbitrary. Nevertheless, this is what sociologists must do in constructing ideal types of relations from concrete patterns of connection. This analytical approach to social relations is a prelude to deciding which is to be seen

as the most important for the practical purpose at hand. When a number of potentially important relations have been identified, however, social network analysis does provide a way of calculating which of these seems to have the greatest salience or significance for the particular question being investigated: this is simply the standard form of causal analysis in social science.

4 *How can I determine the strength of intensity of a social relation?*

At the risk of repetition, this depends on your expert sociological judgement. The strength of a relationship in social network analysis is simply the number that is attached to the line, and this number is something that has to be decided during the research process. The researcher must use some kind of sociologically grounded criterion of scaling in order to assign numerical values to a line. This is relatively straightforward when deciding on the absence or presence of a relation and so assigning a value of 0 or 1, but even here it may not always be obvious when a relationship has ceased to exist or come into being. It is far more difficult to assign a value of 2 to one line and 4 to another, and it may be highly problematic to conclude that the latter is twice as strong as the former. In social network analysis this is technically described as the problem of linearity in ratio scales. All that can be said is that, as in all sociological analyses worth undertaking, a plausible and justifiable estimate of strength must be made and that this tentative and arbitrary estimation must be remembered when it comes to analysing your results. Don't forget that *you* assigned the numbers in the first place and so the results will reflect the plausibility of that initial judgement.

5 *Networks include positive as well as negative relations: does this pose problems for social network analysis?*

Yes, it does, but only because it poses problems for the people involved! Negative relations of dislike, withdrawal, exclusion, or conflict may cause discomfort for the people involved, but for the sociologist they pose no additional questions. A + or – sign can be assigned to indicate their character and they can then be treated in exactly the same way as any other relationship. A negative relationship can be assigned a numerical value in the same way as a positive one and, of course, all the same limitations will apply.

6 *Do I need to know a lot of mathematics to use social network analysis?*

The simple answer is ‘no’. The more complex answer is ‘maybe’. The basic concepts and measures used in social network analysis can all be generated very rapidly by the standard, and easy to use, software packages described in the following chapter. To do this requires absolutely no mathematical expertise and depends simply on your skills with a keyboard and mouse to negotiate the menu structure of the software. However, you do need to have some understanding of what the various procedures are trying to do and whether it makes sense to use them for your data. This is the kind of understanding that I have tried to provide in Chapter 3 and, in more detail, in my handbook of social network analysis (Scott 2012). In order to follow the discussions in some of the more advanced texts, however, you will need to have some familiarity with mathematical notation and procedures, though not generally of a very high level. More important is the willingness

to grapple with the numbers and symbols and to expect some difficulty in comprehension. As with any difficult enterprise in social science, the benefits outweigh the heartaches.

7 What are the ethics of social network analysis; isn't it just a form of snooping and spying?

All sociology is a form of snooping; that's what makes it such fun! Studying networks is no more unethical than studying any other aspect of a person's life. It is important, of course, to observe the normal considerations of confidentiality and anonymity where these are requested and are appropriate, but the application and use of social network analysis raises no additional problems to those found with any other social research method. There have been concerns over the use of social network analysis by the police and the security services to investigate criminal and terrorist networks and networks of political activists. There are very genuine issues about whether academic social scientists should cooperate in such research, but the validity of undertaking this research is not a question of professional ethics but is a much larger political question about the legitimate role and scope of state activity. Social network analysis is not 'value free', but neither is it an especially unethical form of social science.

Further reading

Scott, John and Carrington, Peter 2011. *The Sage Handbook of Social Network Analysis*. London: Sage Publications. Section 1 includes reviews of developments in social network analysis in

various disciplines and considers the theoretical issues raised in these. The Chapters by John Scott and by Bettina Holstein are especially relevant to the issues discussed here.

Cresswell, John W. and Plano Clark, V. L. 2007. *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications. A general source that does not discuss social network analysis but gives a clear statement and rationale for combined or multiple methods.