CENTRE FOR
SOCIAL SCIENCE RESEARCH

Aids and Society Research Unit

NETWORKS OF INFLUENCE: A THEORETICAL REVIEW AND PROPOSED APPROACH TO AIDS TREATMENT ACTIVISM

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CSSR Working Paper No. 218
July 2008

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The author would like to acknowledge the contribution of Prof. Nicoli Nattrass, who provided useful comments on earlier drafts of this article. The research programme of which this study forms part is generously supported by the Joint United Nations Programme on HIV/AIDS (UNAIDS).

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Abstract

The topic of AIDS activism cuts across disciplines, is complex, under-theorised, and does not lend itself to neat theoretical explication. Furthermore, the story of the relationship between activism and the broad societal response to the HIV/AIDS epidemic is still emerging, is deeply contextual, and its analysis requires rich empirical description. But since such a project is necessarily shaped by prior theoretical assumptions, this paper reviews a set of potential approaches for their explicatory potential and ability to inform an ethically engaged discussion. These approaches are broadly categorised as the sociology of political contention (most specifically social movement theory) and the political philosophy of civil society (including notions of global civil society). The focus is on the transnational dimension of activism, which has been especially critical in AIDS activism. I argue for a network approach to political contention and for a conception of transnational networks as 'networks of influence' that incorporate a wide range of actors, including (but not restricted to) the activists normally referred to in transnational advocacy networks. Such an approach is better able to account for the transnational dimension than traditional sociological approaches that exhibit a domestic and state-centric bias. Furthermore (following Keck and Sikkink), I propose a focus on transnational networks as formations that are capable of leveraging powerful actors, information flows and symbolic and accountability politics, but go beyond simplistic formulations such as the 'boomerang pattern'. I conclude that only such an approach — and a willingness to be guided by the empirical and historical reality of AIDS activism — will allow us to make sense of the phenomenon.

1 Introduction

The AIDS epidemic is one of the greatest challenges facing humanity. More than 25 million people have died of the disease. As of 2007, 33 million people were thought to be living with HIV; 2.5 million new infections and 2.1 million deaths occur every year (UNAIDS, 2007:1). The story of society's response to

this is still emerging and is only beginning to be analysed. It is a tale of tardy responses, institutional failures, but also of triumphs in drug development, international mobilisation and activist organisation. In particular, the important role played by the organisation of affected communities for self-empowerment and advocacy work is increasingly being recognised. These efforts have been, and remain, highly context-specific and shaped by the specific national and regional character of the epidemic. However, there are clear commonalities in successful approaches and mobilisation strategies, including increasing transnational co-operation between activists who are primarily active in the local and national spheres as well as the exploitation of complex webs of influence that include non-activist actors like scientists. As Olesen (2006:7) points out, the campaign for access to HIV/AIDS treatment managed to frame its moral appeals transnationally by pushing a local and national problem into "the court of transnational public opinion" (or what may be referred to as 'transnational problem construction').

The relationship between activism and the broad societal response to HIV/AIDS is deeply contextual and its analysis requires rich empirical ('thick') description. But any such empirical project is necessarily shaped — consciously or unconsciously — by a prior set of theoretical assumptions. Since even the the most practically-oriented and historically anchored empirical studies are 'theory-laden,' it is useful to identify the most appropriate theoretical tools with which to approach the topic.

This paper reviews a set of promising approaches and then argues for a conception of transnational networks as 'networks of influence' that incorporate a wide range of actors, including (but not restricted to) the activists normally referred to in transnational advocacy networks. I conclude that only such an approach — and a willingness to be guided by the empirical and historical reality of AIDS activism (including its specificities) — will enable us to make sense of this phenomenon.

The topic of AIDS activism cuts across disciplines, is complex, under-theorised, and does not lend itself to neat theoretical explication. This paper therefore consciously draws upon an eclectic mix of conceptual and theoretical frameworks. A number of specific theoretical approaches, broadly categorised as the sociology of political contention (particularly the study of 'social movements') and the political philosophy of civil society, are evaluated both for their explicatory potential and for their ability to inform a politically and ethically engaged discussion.

The sociology of political contention is of a more descriptive and explanatory

character, whereas the political philosophy of civil society exhibits a greater normative focus. The conclusion that a blend of approaches is required seems inescapable: while sociological models are very useful as an explanatory framework (particularly in a comparative context), a more political-philosophical approach is also required, in part because any study of AIDS activism necessarily has to adopt a position on whether AIDS activism should be encouraged (and what kind of activism is likely to be beneficial). An apolitical and a-ethical analysis may at first seem more defensible, but would be severely impoverished, particularly in the context of HIV/AIDS, which is a deeply political and ethical question.[1]

The most prominent of the sociological theories is *social movement theory*, a predominantly American approach (or, more accurately, set of related approaches). The best-known variants are the 'political process' model of which McAdam is the leading exponent and the European tradition articulated under the rubric of 'new social movements' by scholars like Touraine, Castells, Johnston, Offe and Kriesi (see Touraine, 1981; Castells, 1998; Johnston, 1985; Offe, 1985; Kriesi et al., 1992; 1994; Kriesi, 1996).

Both of these variants are discussed in some detail below, followed by an evaluation of their usefulness for the study of AIDS activism. Two further approaches that have been quite prominent in the literature of the last decade are the study of *transnational advocacy networks* — still primarily a descriptive approach, but one which attempts to overcome some of the theoretical weaknesses of the more traditional sociological approaches — and a view emphasising *global civil society*. The latter is, as the name implies, closely related to the political philosophy of civil society and is therefore a more explicitly political and philosophical approach. However, scholars who make use of this perspective retain a certain empirical focus. Other attempts have been made at giving social movements politico-philosophical interpretations. For example Smith (1998:2–3) argues that new social movements "[politicise] new areas of the social" and in a forthcoming paper in the same tradition the Treatment Action Campaign (TAC) in South Africa is used as an example of the kind of political contestation central to what Laclau and Mouffe term 'radical democracy' (Grebe, 2008a). Writing from a similar perspective, Brown (1997) considers AIDS activism in Vancouver to have constituted a kind of 'radical citizenship,' implying a new way of thinking the relationship between individuals and the state. But these explicitly philosophical approaches have often exhibited limited interest in the empirical reality of social movements, and

[1] This question echoes in some ways the theoria/praxis debates in critical philosophy. I would align myself with thinkers like Horkheimer who argued that neither empirical social research nor social theory can be conducted in isolation from ethical and political understanding.

they run the risk of glamorising activist movements in the interest of (perhaps dubious) philosophical projects.

It seems to me that a hybrid approach, which exhibits both a political engagement and an empirical focus centred on a 'network perspective' (see below), is most appropriate for framing an empirical investigation. Concepts and theoretical insights from all the approaches, including the traditional sociology of social movements should be incorporated.

Critically, any theoretical approach employed in the study of AIDS activism must be able to take account of the transnational dimension such activism (like much other activism) has increasingly displayed. This takes the form not only of activist networks, but also of interaction with international and intergovernmental institutions, multinational corporations, scientific networks, etc.; and operate at the level of both political activity and influence. It will be argued that one of the weaknesses of traditional sociological approaches has been their 'domestic bias' and failure to take this transnational dimension seriously. Approaches informed by a network approach are better able to do so.

A number of key questions that must be addressed in any systematic study of AIDS activism are not easily approached using existing theoretical frameworks. One example is 'AIDS exceptionalism,' i.e. the apparent specificity of AIDS as a social phenomenon. Why was AIDS the one disease around which a worldwide activist movement developed,[2] given that other diseases — even those affecting predominantly marginalised communities, such as tuberculosis — often affect larger numbers of people? Is it that the disease was at first thought to affect mainly a minority that had already been highly politicised (the gay and lesbian community in the United States)? Was it the fact that it is sexually transmitted and therefore immediately brought into play the fraught and contested terrain of sexuality? And why were a small number of AIDS activists

[2] The uniqueness of the AIDS movement is attested to by the militancy of early US activism compared to that around other diseases. Steven Epstein makes reference to a telling episode in which AIDS activists made a presentation before a US government committee, and

> . . . the extraordinary contrast between the AIDS activists and the spokespersons for other illnesses. On the one hand, there was the "very well behaved," "well-dressed" woman dying of breast cancer, who testified before the committee in moderate tones about the need for new cancer therapies. On the other hand, there were the noisy AIDS activists . . . "[who] took out their watches and dangled them to show that time was ticking away for them." (Epstein, 1996:232)

It is illustrated equally well by the fact that the international AIDS movement is characterised by outspoken activism, whereas almost all advocacy related to other neglected diseases and diseases predominantly affecting the third world is conducted by 'charity' NGOs like *Médecins sans Frontières* and Oxfam originally from the developed world.

able to score a number of highly significant victories against apparently vastly more powerful actors (e.g. multinational pharmaceutical companies and the US government that supported them[3])? These questions need to be addressed in some detail. While some features of the AIDS movement can be explained by means of the political process model (e.g. some of the successes may be attributable to changing 'political opportunities') others call this kind of generalised approach into question.

Another aspect that is difficult to approach using existing frameworks is the role of emotion and the role of individual personalities. AIDS activists frequently make reference to fear, grief and anger as motivations for engaging in activism. These emotions appear as motifs in many of the campaigns and materials of activist movements — both the initial militant forms of which ACT UP is emblematic and that evolved out of the gay and lesbian struggles in the US and activism in very different contexts such as that of the Treatment Action Campaign (Gould, 2002; Grebe, 2008b). A psychological perspective (at both the group and individual levels) that can account for these phenomena can therefore not be escaped.

Individuals and their particular, contingent experiences seem to have had a major influence on the development of AIDS activism. Can we really talk about AIDS activism without talking of Larry Kramer, Mark Harrington, Martin Delaney, Milly Katana, Noerine Kaleeba and Zackie Achmat? This can best be addressed in detailed historical narratives, but the role of individuals is better accounted for in a network perspective, since critical connections in networks of influence often consist of personal friendships or contacts and certain key individuals act as critical interconnecting nodes. These questions will be explored in this paper, but really come into their own only in detailed case studies.

[3] South African activists, with substantial international support, are widely seen as having prevailed against a coalition of multinational pharmaceutical firms in 2001, when the latter withdrew a legal challenge to legislation that threatened their ability to profit from patented medicines (see Cleary and Ross, 2002; Friedman and Mottiar, 2005; Grebe, 2008b; Van Niekerk, 2005).

2 The sociology of ‘social movements’

2.1 Social movement theory

It is debatable whether AIDS activism can be considered a social movement in the classical conception, but it is certainly a form of contentious political activity that falls within the range of phenomena normally studied in social movement theory. Ballard et al. (2006:3) define social movements as “politically and/or socially directed collectives, often involving multiple organisations and networks, focused on changing one or more elements of the social, political and economic system within which they are located.” In this they follow Tilly (1985, quoted in Ballard et al., 2006:2), who emphasises “demands or challenges to power-holders in the name of a social category that lacks an established political position” and Jelin (1986, quoted in Ballard et al., 2006:3), who considers both a high degree of popular participation and the participants “establishing themselves as collective subjects, that is, as a group or social category” essential characteristics of social movements.

Social movement theory is closely associated with traditional political sociology. It focuses on the structural preconditions and means for collective action and emphasises three broad sets of factors in the analysis of social movements. These are (1) the structure of political opportunities and constraints confronting the movement; (2) the forms of organisation (both formal and informal) available to participants; and (3) the collective processes of interpretation, attribution, and social construction that mediate between opportunity and action, known as ‘framing processes’ (McAdam et al., 1996:2). While this tradition is rooted in the study of revolutionary movements and popular insurgencies, its proponents claim that it is applicable also to the so-called ‘new social movements’ (i.e. those that demand rights or equality without aiming at the overthrow of the state) and even ‘new-new social movements’ (the transnational movements pressing for fairer globalisation etc.). For example, Ballard et al. (2006:3) argue that analyses of political opportunities, mobilising structures and framing processes include a wide range of theoretical perspectives and work together to “bridge” approaches to old and new social movements. However, critics argue, in my view correctly, that it retains a state-centric view of politics (Taylor, 2004:4).

A basic assumption of social movement theory is that any given challenger faces political opportunities and constraints; changes in these opportunities and constraints, on the one hand, determine whether a movement emerges and, on the other, shape the ebb and flow of movement activity over time (McAdam et

al., 2001:41). McAdam et al. (1996:3) point out that earlier (American) scholars attempted to explain the emergence of movements according to changes in institutional structure or informal power relations, with later (European) scholars bringing a comparative perspective to bear, i.e. to investigate how differences in the political characteristics of the nation-states within which they operate impact upon the structure, extent and success of social movements (see Kriesi 1989, Kitschelt 1996, Koopmans 1992 and Duyvendak 1992, cited in McAdam et al., 1996:3). McAdam (1996:27) identifies four dimensions of political opportunity that constitute a relative consensus among authors in the field: "[1] the relative openness or closure of the institutionalized political system; [2] the stability or instability of that broad set of elite alignments that typically undergird a polity; [3] the presence or absence of elite allies; and [4] the state's capacity and propensity for repression." The emphasis throughout is on national political context and the way this context is presumed to shape social movements. This reflects the state-centric bias of this approach, although it must be said in the defence of social movement theorists that some have acknowledged this problem and attempted to broaden their conception of opportunity structures. For example, Tarrow (1996:54) defines political opportunity structure as "consistent — but not necessarily formal, permanent *or national* — signals to social or political actors which either encourage or discourage them to . . . form social movements" (my emphasis). He concedes that transnational social movements present a challenge and that "national regularities in state structure must be seen as no more than the initial grid within which movements emerge and operate" (Tarrow, 1996:53).

The forms of organisation available to and employed by movements are considered key to explaining their impact. These are often termed 'mobilising structures' — defined as "those collective vehicles . . . through which people mobilize and engage in collective action" (McAdam et al., 1996:3). A closely related term is that of 'repertoires of contention' which refers more explicitly to the types of activities (marches, sit-ins, etc.) employed by activist movements (cf. McAdam et al., 2001:43). McAdam et al. (1996:3-4) trace these ideas to two distinct theoretical perspectives, nl. that of resource mobilisation theory (which shifted the focus from grievance-based conceptions of social movements to mobilising processes and their organisational manifestations); and that of the political process model which emphasised grassroots settings (such as the workplace or neighbourhood) and local institutions (e.g. black churches in the civil rights movement). Perhaps the clearest conceptualisation is provided by Tarrow (1998:123) who distinguishes between three aspects of movement organisation: (1) formal hierarchical organisation (the dominant aspect in the literature), which refers to the formal organisation(s) that attempts to give expression to a movement (sometimes referred to as Social Movement

Organisations or SMOs); (2) the organisation of collective action at the point of contact with opponents (branches or even cells, informal social networks, clubs, etc.) which may be controlled by formal organisations, coalitions of organisations or no one in particular; and (3) connective structures that link leaders to followers, different parts of movements, organisations supporting a movement, etc. The analysis of networks presented in this paper — which argues that they are critical to explaining both the organisational forms and forms of action of AIDS activism and the impact of activism — takes its cue from this conception of mobilising structures, but also goes beyond it. This is discussed in greater detail later in this paper.

The third factor emphasised by social movement theory — 'framing processes' — is described as "fram[ing] specific grievances within general collective action frames which dignify claims, connect them to others, and help to produce a collective identity among claimants" (McAdam et al., 2001:41). In this view, shared meanings and definitions are critical in mediating between opportunity, action and organisation; this requires at least feeling both aggrieved and optimistic that collective action can improve the situation (McAdam et al., 1996:5). Framing processes are the processes by which these shared meanings are established. This aspect served as a corrective to the resource mobilisation perspectives which accorded very little significance to ideas and subjective motivations. While David Snow et al. (1986 cited in McAdam et al., 1996:5) first employed the term, both McAdam et al. (1996:5) and Ballard et al. (2006:6) point to the important role of new social movement scholars such as Alain Touraine in focusing attention on the importance of subjective elements such as identity and meaning. (This is perhaps not surprising, given that many of these new social movements — e.g. those agitating for sexual liberation — were characterised by distinctive cultural aspects, and many of their demands were underpinned by strong identity claims.) The concept of framing processes is used, then, to describe both the conscious efforts of movement leaders and participants to construct shared understandings and the underlying cultural resources which they employ. Says Tarrow:

> It is participants' recognition of their common interests that translates the potential for a movement into action. By mobilizing consensus, movement entrepreneurs play an important role in stimulating such consensus. But leaders can only create a social movement when they tap more deep-rooted feelings of solidarity or identity. (Tarrow, 1998:6)

The above quote illustrates many of the problems with social movement theory. First, reducing the motivations of participants to 'interests' reveals an

economistic bias that fails to accord with social movements — particularly in its transnational form — that succeed in building alliances between interest groups and individuals and organisations not motivated directly by their own interests. It fails to take seriously the moral claims of movements. As both Taylor (2004:6) and Keck and Sikkink (1998:1) have pointed out, these actors' motivations can not be reduced to their narrow interests as sociological and economic models tend to do. Keck and Sikkink say that (1998:8–9): "they are organised to promote causes, principled ideas, and norms, and they often involve individuals advocating policy changes that cannot be easily linked to a rationalist understanding of their 'interests."'

Second, there seems to be an overemphasis on consensus and identity. This runs counter to both the empirical reality of movements that are often formed through ad hoc, temporary and fluid networks of diverse groups and individuals, and the theoretical current underlying the network conception of movement formation and action that I prefer (see the relevant section later in this paper). Social movement theorists may respond that only those movements able to construct collective identities and build consensus should be considered 'true' social movements. For example, Ballard et al. (2006:3) question whether all contemporary social struggles in South Africa should be considered social movements, since some may not be popularly located or do not sufficiently establish a collective identity. But this emphasis on collective identity rather limits the applicability of the theory, particularly when it comes to transnational networks (which play a crucial role in AIDS activism), since these are often based on alignments of purpose rather than the establishment of collective identities. Often organisations, groups and individuals link up and act in a coordinated fashion merely strategically. This is not to deny that in some movements collective identities are fundamental. Clearly, shared identity formation was a key part of the gay movement as it emerged in the US from the 1960s and was still critical in the mobilisation of early AIDS activism. It may even be the case that the activist movement would not have emerged (or would have been less strong) had it not been rooted in a well-established gay movement and could that movement not have mobilised identity-related sentiment. But a network approach would reject a conception of movements as monolithic entities brought about only by evacuating difference and diversity. Rather, it points to the many ways in which seemingly insurmountable differences and divergent interests are overcome by means of temporary and strategic alliances mobilised through networks that are capable of accommodating diversity precisely because they do not necessarily imply closely-knit integration between all participants. Rather, the pattern is one of complex webs of more and less integrated sub-networks (which may include very dense conglomerations indeed, including ones framed by identity) with

greater and lesser degrees of proximity and identification. But I am getting ahead of myself.

Nonetheless, social movement theory does provide analytical tools that are useful in conceptualising the processes at work in activist movements — as long as we do not reduce the movements to these processes. Perhaps my argument is less one against social movement theory as one against simplistic and reductionist interpretations and applications thereof. And many of its insights are undeniably accurate. So, while I will argue that the political process model is not sufficient for our purposes, it would be absurd to suggest that there is no place for categories such as 'political opportunities' in our analysis. Obviously, the TAC's highly successful strategy of using constitutional litigation to compel the South African government to alter its AIDS policy, is to exploit the political opportunity afforded it by the institutional arrangement of a separation of powers established by constitutional democracy in South Africa (namely the power of the Judicial branch of the state vis-à-vis that of the Executive). Clearly, without the fundamental transformation of the state in the early 1990s such a strategy could never have been successful, and in this sense the state-centric political process model is perfectly applicable. But the emergence and success of AIDS activism cannot be explained simply in these terms.

2.2 'New' social movements

As already mentioned, the new social movements tradition acted as a corrective to the cruder forms of social movement theory — particularly resource mobilisation theory — by emphasising the centrality of cultural and identity aspects in collective action. According to Buechler (1995:442) new social movement theory, among other things, "problematize[s] the often fragile process of constructing collective identities and identifying group interests, instead of assuming that conflict groups and their interests are structurally determined" as well as recognising "a variety of submerged, latent, temporary networks that often undergird collective action, rather than assuming that centralized organizational forms are prerequisites for successful mobilization." Manuel Castells, for example, critises resource mobilisation theory for "incorporating [the social movement] into the political process aimed fundamentally at the state" (1983, cited in Hannigan, 1985:438). Both an anti-institutional orientation and group identity are seen as products of the group process and emergent from the movement's internal dialogue (Hannigan, 1985:449).

While these theorists reject simplistic notions of 'structural determinants' of movements, there is nevertheless an overriding focus on a societal totality that

acts as a context for collective action (Buechler, 1995:459). For example, Alain Touraine (1981:6–7), probably the most prominent theorist of new social movements, attributes the introduction of cultural aspects into social struggles to certain fundamental changes occurring in post-industrial ('programmed') society, including the loci of domination expanding beyond the economic sphere. Both Touraine and Castells have been criticised for succumbing to structural determinism and for employing an evolutionary theory of social transition that is essentially speculative and lacks evidence (Hannigan, 1985:448). Even if the state-centric bias of classical social movement theory is addressed, therefore, a certain domestic bias is retained.

Buechler (1995:459) questions the fundamental category of 'new social movement' and argues that it obscures continuities and exaggerates differences between past and present movements, though he acknowledges that there has been a shift in emphasis and orientation in many contemporary social movements. I am inclined to agree, and consider the new social movement perspective a theoretical advance over the cruder forms of social movement theory as well as a recognition within the sociological tradition of non-structural and dynamic aspects of movement formation and collective action.

In their most recent writings, some of the key exponents of social movement theory have attempted to formulate a more dynamic model. McAdam et al. (2001:43–50) do this by reconceptualising opportunity structure as the "attribution of threat and opportunity"; mobilising structures as the "social appropriation" of organisation and membership; strategic framing as "social construction" and repertoires of action as "innovative collective action."

Nevertheless, I am not convinced that either the European new social movement perspective or the recent attempts to reformulate classical social movement theory address the fundamental theoretical weaknesses. My objections to the model are three-fold. First, it does not take sufficient cognisance of the dynamic forms of organisation — primarily the formation of transnational networks — that are increasingly in evidence. Of course, these forms are not entirely new (they have precursors as far back as the global campaign against slavery starting in the eighteenth century), but have been significantly enhanced by the information and communication technologies that became prevalent in the latter part of the twentieth century. Furthermore, it is not that these forms did not exist before, but rather that they have now become the paradigmatic forms of organisation. Increasingly they are essential for success. Second, this model exhibits a state-centric and national bias and does not adequately account for the transnational dimension. Third, its morally detached perspective fails to account for the subjective motivation of actors beyond their 'interests' and itself pretends

to a normative neutrality that is neither achievable nor necessarily desirable.

It is therefore worth investigating a number of other perspectives for theoretical tools appropriate to the study of AIDS activism.

3 A network model of political organisation

3.1 The network perspective in the social sciences

Social network analysis has become an increasingly popular technique in the social and behavioural sciences. It focuses on the webs of interrelationships between individuals. Individuals (‘actors’) are considered primarily as nodes in the network, rather than as the repository of individual agency. A basic premise of network thinking is that outcomes are shaped more by the ‘network effects’ that result cumulatively from the relationships between nodes than by the characteristics of the nodes themselves. Applied to social networks, this view holds that an individual’s significance in a social configuration results from the ties (strong or weak, many or few, etc.) between that individual and others in the network.

Social network analysis is closely related to the rise of ‘systems thinking’ and ‘complex systems’ in the sciences, particularly in biology, climate science, computer science and engineering. For example, Cilliers (1998:12– 13) distinguishes between two approaches to modelling complex systems: the traditional analytical approach (‘rule-based’ models) and connectionist models (e.g. neural networks). The former assume that a system can be adequately described by specifying rules analytically, whereas the latter acknowledges that a system may be too complex to describe in such fashion and can be approached better through models that replicate some of the features of complex systems (such as self-organisation). In this way connectionist models may be able to account for certain ‘emergent properties’ of complex systems that analytical models are not. Formal social network analysis makes use of statistical and mathematical techniques to describe the relational structure of networks and emphasises “explicit, mathematical statements of structural properties, with agreed upon formal definitions” (Wasserman and Faust, 1994:17) in order to develop formal and testable models.

While the application of this type of structural analysis to AIDS activism may well prove to be a productive exercise, it will not be attempted in this research programme. Nevertheless, many of the concepts (employed more as suggestive

theoretical constructs than as formally defined ‘structural properties’) are useful for developing an understanding of how activist networks form, organise themselves, and produce social effects. In particular, as I will argue later in this section, a network perspective allows us to explain how activist movements are sometimes able to wield influence far beyond what would be expected from their position in the configuration of political power (if the latter is understood in conventional terms).

It was argued in the introduction to this paper that any study of AIDS activism must take account of the role of individuals, and my analysis does retain individual agency as an important factor. (In this sense it does not go beyond conventional historiography.) Since a network perspective de-emphasises the characteristics of individuals in favour of network effects, it does not seem capable of helping us to accommodate the individual aspect. But despite the tension between network theory and individual agency, the former nevertheless suggest the possibility of an understanding of the role of key individuals that derives from their ‘position in the network.’ For example, certain individuals — owing to their particular sets of relationships with others — are uniquely able to bring together diverse groupings and to mobilise strategic individuals and groups. Perhaps a classic example is Granovetter’s description of “the strength of weak ties.” In Granovetter’s view, having a large number of ‘weak’ connections to other individuals, i.e. to a generally more diverse set of acquaintances, is more important in social mobilisation than the strength of those connections. While ‘strong’ ties — such as close friendship and kinship — may be highly effective in mobilising those individuals to whom one is so tied, these have two disadvantages: (1) one is likely to have fewer such ties and (2) they are less likely to enable mobilisation beyond a certain social grouping (such as a neighbourhood or ethnic community). The counterintuitive conclusion is that the weak ties between individuals in different groups are more important than the strong ties within groups. There is strong empirical evidence supporting this analysis (see Granovetter, 1973; 1983). While this analysis is usually applied at the group level to explain why certain issues gain wider traction than others, it is applicable also at the level of key individuals. Empirical studies of AIDS activism seem to confirm that a relatively small number of individuals can bring to bear the intergroup linkages that are key to wide mobilisation, even if most movement participants rely on strong ties to mobilise friends and family (see Grebe, 2008b). Both ‘bridging ties’ and ‘bonding ties’ are therefore key to understanding network mobilisation.

Cilliers (1998) points out in his philosophical study of complex systems that while a complex systems perspective undermines traditional ‘structural’ models, this does not preclude relatively stable patterns of interaction — and therefore

relatively stable structure — from emerging in a complex system. This suggests that in certain circumstances traditional non-network-oriented approaches may be adequate, as long as one does not ignore network effects where they do occur. There are therefore two reasons why a network perspective does not preclude an emphasis on the role of individuals: (1) the influence of individuals can itself be understood in network terms, and (2) when a network exhibits relatively stable patterns of interaction, the role of particular nodes may not differ all that much from what a traditional agential analysis would suggest.

But a network perspective can also help us describe certain mobilising strategies that have become possible owing to technological innovation, and that have proven successful in recent struggles. Heckscher (2006) argues, for example, that there are fundamental organisational reasons to adopt a network approach to mobilisation. First, the traditional social movement model of mass action based on cohesive solidarity such as class solidarity have in recent times been unable to sustain a militant base that can energise organisation.[4] And those struggles built on the identity-based 'new social movement' model have remained local and isolated (Heckscher, 2006:329). In contrast, he argues, networks — formations that are fluid, open and generally voluntary, without the stable structures and hierarchies of traditional organisations — can be very effective in dealing with complex problems of organisation, and be effective agents of social change (Heckscher, 2006:330).

It is by no means new to apply the idea of social networks to social movements and mobilisation, but the idea has generally been employed in the context of recruitment — i.e. how the social linkages between individuals and communities help or hinder recruitment of new members into movements (e.g. Tilly, 1978; Snow et al., 1980; McAdam, 1982; cited in Olesen, 2006:10). Later in this section I develop a notion of 'transnational networks of influence' that draws on social movement theory but applies it specifically to the mobilisation of transnational networks and that goes beyond active movement participants to explain the impact and influence of activism.

3.2 'Transnational social movements'

Intellectuals broadly aligned with the Left have often been rather pessimistic about the impact of globalisation, believing that it reduces the opportunities for the social regulation of the economy. In a globally integrated economy, capital is

[4] His analysis is applied particularly to American organised labour, though he makes general theoretical points that are equally applicable to other movements.

increasingly ‘footloose’ and able to exercise ‘exit options.’ The so-called anti-globalisation movement, too, is premised on this view, often aiming protest action at the institutions perceived as undermining communities by furthering the unfettered flow of capital, goods and services. But increasingly there is an alternative view, namely that the growth of communication and movement across national boundaries (facilitated in part by new communication technologies and lower cost air travel) also expands the opportunities for global movements for equity and justice. Theorists as diverse as Manuel Castells, Ernesto Laclau and Antonio Negri have adopted this more optimistic view (see Castells, 1998; Laclau and Mouffe, 1985; Laclau, 1990; Hardt and Negri, 2000; 2004). The activist movements that have been most successful at exploiting the opportunities created by economic and political globalisation are those that themselves have a transnational character — or which are able to ‘jump scale’ and draw on supportive international networks and resources. International AIDS activism is probably one of the best examples of this.

Earlier I criticised social movement theory for its domestic bias. A number of approaches have emerged that attempt to overcome this bias and account for the emergence of ‘transnational social movements.’ These include what della Porta and Tarrow (2005a:232–233) term “transnational relations” from within the international relations tradition and including authors such as Keohane and Nye (1972) as well as global civil society and “transnational citizenship” approaches which include authors such as Edwards and Hulme (1996), Wapner (1995) and Soysal (1994). In addition, some of the leading exponents of social movement theory have also turned their attention to the transnational domain, but argue that the essential insights of social movement theory remain applicable. Tarrow and McAdam (2005:122) argue, for example, that “although much is new and challenging about transnational contention, some familiar processes from the social movement repertoire, like mobilization, are so essential to contentious politics that it is hard to understand these new phenomena as if they were wholly new.” Others have attempted to apply the basic categories of social movement theory (political opportunities, mobilising structures, framing processes) to the transnational domain but also introduce concepts such as ‘issue networks’ (see, for example, Smith et al., 1997).

Most promising of the developments in traditional social movement theory is the notion of ‘complex internationalism’ elaborated by della Porta and Tarrow (2005b;a). Complex internationalism is a development of Keohane and Nye’s (cited in della Porta and Tarrow, 2005a:234) concept of ‘complex interdependence,’ who argued that “increasing international interdependence produces sustained interactions ... leading to the creation of interstate and transgovernmental practices and institutions below and outside of the state level

of international relations." They include non-state actors in their schema and define 'complex internationalism' as:

> . . . the expansion of international institutions, international regimes, and the transfer of resources of local and national actors to the international stage, producing threats, opportunities and resources for international NGOs, transnational social movements and, indirectly, grassroots social movements. (della Porta and Tarrow, 2005a:235)

Unlike some in the social movement perspective, della Porta and Tarrow view globalisation and transnationalism as introducing aspects that are new and that require analytical reflection. They offer 'complex internationalism' as a synthetic perspective that is neither exclusive nor all-encompassing (della Porta and Tarrow, 2005a:240). In this sense it is a useful perspective, but it does not yet draw on the network perspective which I see as holding most promise for anchoring empirical reflection on AIDS activism.

3.3 Transnational advocacy networks

An approach that draws on the network perspective, and that is also able to take account of the transnational dimension of AIDS activism, is the study of 'transnational advocacy networks,' perhaps most interestingly employed in Keck and Sikkink's (1998) seminal study *Activists beyond borders.* Their analysis is attractive since, unlike many others, it goes beyond International NGOs (INGOs) and views also the networks which domestically-focussed movements leverage (and in which not all movement members necessarily actively participate) as central. It may be productive to distinguish, as Tarrow (2001:2) does, between three forms of transnational action in contentious international politics: (1) Transnational Social Movements; (2) International Nongovernmental Organisations; and (3) Transnational Activist Networks. The third of these categories is most applicable to transnational AIDS activism. A second approach focusing on the transnational domain, the study of 'global civil society,' is briefly discussed later in this section.

According to Keck and Sikkink (1998:1), transnational advocacy networks "multiply channels of access" to the international system by creating new links among actors in civil societies, states, and international organisations. In this way, civil society actors are able to exercise greater influence over policy. They define networks as "forms of organization characterized by voluntary, reciprocal, and horizontal patterns of communication and exchange" (Keck and Sikkink, 1998:8).

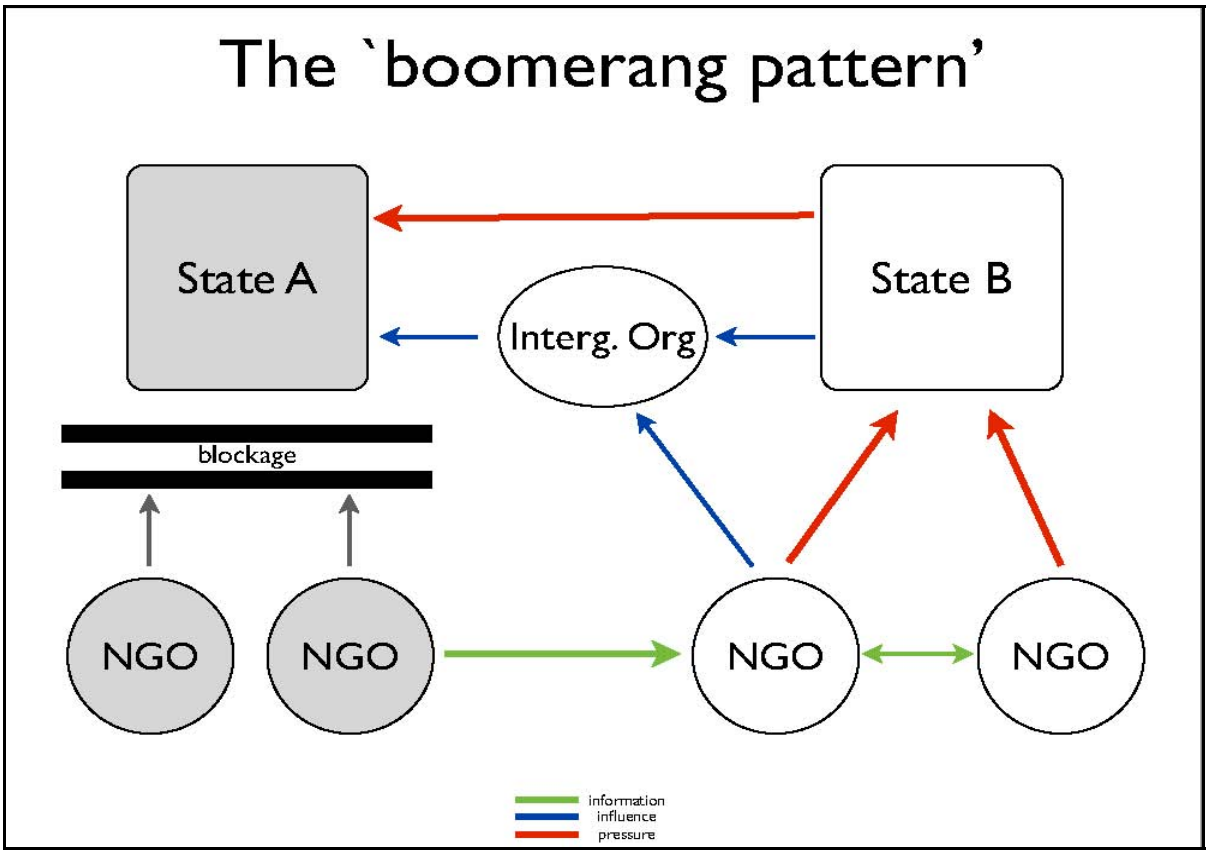
Their main argument is that the impact of activism at the domestic level is to a significant extent a function of these transnational networks. Evans (2000) argues that transnational networks enable what he terms 'counterhegemonic globalization.' Concrete examples of success often cited include the human rights movement, the women's movement, the environmental movement and the impact of anti-sweatshop campaigns. Importantly, they conceive of networks as deliberately constructed organisational structures: "claims around issues amenable to international action do not produce transnational networks. Activists . . . do" (Keck and Sikkink, 1998:14). It is a distinct advantage of their analysis that individual agency is not evacuated from it and that networks are not reduced to the automatic result of structural factors. Furthermore, their view that active participation in transnational network formation and information flows, accords with the empirical findings that certain individuals and relatively small networks of key activists play a critical role in mobilising AIDS activist movements.

Four tactics are typical of these networks: (1) *information politics* (quick generation of credible politically useful information and moving it to where it will have the greatest impact); (2) *symbolic politics* (employing actions and stories that make sense of a situation to an audience that is often far away); (3) *leverage politics* (calling upon powerful actors to affect a situation that less powerful network participants are unable to influence); and (4) *accountability politics* (holding powerful actors to their previously stated positions or policies) (Keck and Sikkink, 1998:16–25).

This conception of transnational advocacy networks is powerful, and appropriately refers to the links between actors within various spheres of the international system. However, in its application Keck and Sikkink often revert to a more simplistic conception of the operation of networks: namely that they increase the leverage of domestic civil society actors over national governments via the so-called 'boomerang pattern':

> When channels between the state and its domestic actors are blocked, the boomerang pattern of influence characteristic of transnational networks may occur: domestic NGOs bypass their state and directly search out international allies to try to bring pressure on their states from outside. (Keck and Sikkink, 1998:12)

The graphic below illustrates the 'boomerang pattern' of influence over governments:



Clearly, this pattern does have some applicability to AIDS activism. In De Waal's view, for example, this is responsible for much of the success of AIDS activism in Africa, where domestic activists have been able to exploit transnational networks comprising international NGOs, international (interstate) organisations — including those forming part of the UN system such as UNAIDS and the WHO — and donor governments as a means of leverage over their own governments, even where those governments have not been susceptible to traditional pressure exerted within the domestic political system.

> African governments are . . . located in new webs of accountability, reaching downwards to new domestic players (CSOs[5] and citizens in international agencies), sideways to other African governments, the African Union and subregional organizations, and upwards to a changed and permeable set of foreign institutions. African citizen activists are diversifying their channels of influence so as not to rely exclusively on domestic institutions and processes that are fragile and easily manipulated. (De Waal, 2006:58–59)

[5] Civil Society Organisations

3.4 Transnational networks of influence

However, transnational networks are more complex than the triangular conception of influence that the boomerang pattern suggests. While the boomerang pattern is undeniably discernible, it is but one manifestation of what could more appropriately be termed 'transnational networks of influence.' The boomerang conception neglects factors other than pressure applied by other states. In my view the network model should be expanded to include not only networks of activists and NGOs, but also other actors, so that we are describing webs of influence that may include (in the case of AIDS activism) scientific communities, international bureaucrats, diplomats, but even extending to individuals and institutions within the target state. Often pressure is brought to bear via such complex webs of influence, rather than through direct state-to-state or institution-to-institution pressure. While Keck and Sikkink (1998:117) do consider the 'vulnerability' of the target state to pressure a key factor in network effectiveness, the empirical research drawing on the framework developed in this paper demonstrate that allies, or at least sympathetic individuals within the target state, are often decisive (see Grebe, 2008b). The proposed conception of networks of influence is also more compatible with the general network perspective and with the theoretical innovations it allows.

Furthermore, as will become clear in the case studies, relationships (often quite close personal ones) between key players in activist movements — both within countries and across borders — have played a very significant role in the formation of transnational networks of influence (see Smith and Siplon, 2006; Grebe, 2008b). While McAdam and Rucht (1993, cited in Keck and Sikkink, 1998:9) acknowledge that "some issue areas reproduce transnationally the webs of personal relationships that are crucial in the formation of domestic networks," I will argue that these 'webs of personal relationships' are in fact key to both the emergence and the influence of networks. In other words, the dense networks of friendship, love and political comradeship among gay men that is credited with the rapid emergence of AIDS activism in the United States (see, for example, Smith and Siplon, 2006) are discernable to an extent even in international activist networks.

3.5 Global civil society?

A term increasingly common in both popular and theoretical discussions of the international dynamics of contestatory politics — particularly where this involves activists and NGOs — is that of 'global civil society.' However, there is by no means consensus on how this should be approached theoretically.

Tarrow (2001:2) cautions against making too direct a jump

> . . . from globalization or some other such process to transnational social movements and thence to a global civil society. [Theorists who do so] fail to adequately distinguish social movements, nongovernmental organizations (NGOs), and transnational networks and do not adequately specify their relations with each other or with states and international institutions.

He further cautions that states remain dominant in most areas of policy, that globalisation has been around for at least a century, and that social movements, transnational networks and NGOs are not the only agents operating transnationally — pointing out that states and state-led institutions often fund and control non-state transnational actors like NGOs (Tarrow, 2001:2-3).

It is important to look critically at the dynamics of the alignments and disalignments that occur within global activist networks and networks of influence. Tvedt goes so far as to liken the adulatory accounts of NGOs as the world's conscience to the 'glorious narratives' of nineteenth century European historians and argues, in the same vein as Tarrow, that international relief and development NGOs should not be analysed as global civil society but in fact form part of a new, broader social system embedded in the international state system (Tvedt, 2004:135–136). An uncritical assumption that international NGOs form part of a global civil society that acts as counterweight to the power of other (less democratic) transnational actors — including states, international organisations and multinational corporations — would be naïve.

It seems to me that global civil society, if we are to use the term at all, is best conceived of as the contested and fragmentary terrain of transnational contentious political and social action. It is not clear that the notion of global civil society significantly adds to the theoretical toolbox we can apply to transnational AIDS activism, and it certainly carries the danger of implying a unified counterweight to less benevolent transnational actors. But the notion is useful insofar as it acknowledges the critical international dimension to civil society struggles and the increasing importance of the transnational domain for activists.

4 Concluding thoughts

I have argued that a less 'structural', less static and less domestically biased conception of contentious political action is required for the study of AIDS activism, than that offered by traditional sociological approaches to social movements. I have also argued in favour of an approach that acknowledges individual agency and that is able to inform an ethically and politically engaged discourse.

While the notion of transnational advocacy networks (and the associated approaches emphasising transnational social movements and global civil society) remains largely descriptive, it exhibits a number of important theoretical innovations. The first of these is that they transcend the national bias and are able to incorporate the new and innovative forms of networking that characterise many of these movements. Secondly, particularly the notion of global civil society (whatever other problems it may have) incorporates a more explicitly political and normative perspective. Taylor (2004:4) specifically argues, for example, that reactionary transnational movements such as neo-fascist and racist movements should be excluded from the definition of global civil society.) Thirdly, these perspectives incorporate 'subjective ideological dimensions' beyond merely their function as 'framing practices' (see Taylor, 2004:7).

I agree with Sidney Tarrow that it is important to distinguish theoretically between transnational social movements and activist networks. The former imply a mass-based social movements operating at the global level and lead to premature conclusions that a global civil society is in place and able to act as counterweight to transnational corporations and international institutions of capital. While it is true that activist networks are "more routinized" and driven by the rise of a "cosmopolitan class of transnational activists," this does not imply that all such networks are likely to be co-opted into the international system and will necessarily lose their radical character. Rather, as the case study of South African AIDS activism in particular shows, it is possible to establish links between community-based 'grassroots' domestic activists and activism in the transnational domain in which the latter is not dominated.

In order to overcome some of the theoretical weaknesses associated with this approach, I have proposed a conception of transnational networks as 'networks of influence' that incorporate a wide range of actors, including (but not restricted to) the transnational activists normally referred to in transnational advocacy networks. Furthermore, (following Keck and Sikkink) I propose a focus on transnational networks as formations that are capable of leveraging powerful

actors, information flows and symbolic and accountability politics, but that go beyond simplistic formulations such as the ‘boomerang pattern’ (except as one out of many possible patterns). Only such an approach — and a willingness to be guided by the empirical and historical reality of AIDS activism — will enable us to make sense of this phenomenon.

References

Ballard, R., Habib, A., Valodia, I., and Zuern, E. (2006). Introduction: From Anti-Apartheid to Post-Apartheid Social Movements. In Ballard, R., Habib, A., and Valodia, I., editors, *Voices of Protest: Social Movements in Post-Apartheid South Africa*, page 1–22. University of KwaZulu-Natal Press, Durban.

Brown, M. P. (1997). *RePlacing Citizenship: AIDS Activism and Radical Democracy*. The Guildford Press, New York.

Buechler, S. M. (1995). New social movement theories. *The Sociological Quarterly*, 36(3):441–464. DOI: 10.1111/j.1533-8525.1995.tb00447.x.

Castells, M. (1998). *The Information Age: Economy, Society and Culture (Volumes I–III)*. Blackwell, Oxford.

Cilliers, P. (1998). *Complexity and postmodernism*. Routledge, London.

Cleary, S. and Ross, D. (2002). The 1998-2001 Legal Struggle between the South African Government and the International Pharmaceutical Industry: a Game-Theoretic Analysis. *The Journal of Social, Political and Economic Studies*, 27(4):445–494.

De Waal, A. (2006). *AIDS and Power: Why there is no political crisis — yet*. Zed Books and David Philip, London and Cape Town.

della Porta, D. and Tarrow, S. (2005a). Conclusion: “Globalization," Complex Internationalism, and Transnational Contention. In della Porta, D. and Tarrow, S., editors, *Transnational Protest and Global Activism*, page 227–246. Rowman & Littlefield, Maryland.

della Porta, D. and Tarrow, S. (2005b). Transnational Processes and Social Activism: An introduction. In della Porta, D. and Tarrow, S., editors, *Transnational Protest and Global Activism*, page 1–17. Rowman & Little-field, Maryland.

Edwards, M. and Hulme, D. (1996). *Beyond the Magic Bullet: NGO Performance and Accountability in the Post-Cold War World*. Kumarian, New Hartford, Connecticut.

Epstein, S. (1996). *Impure Science: AIDS, Activism, and the Politics of Knowledge*. University of California Press, California.

Evans, P. (2000). Fighting Marginalization with Transnational Networks: Counter-Hegemonic Globalization. *Contemporary Sociology*, 29(1):230–241.

Friedman, S. and Mottiar, S. (2005). A Rewarding Engagement? The Treatment Action Campaign and the Politics of HIV/AIDS. *Politics & Society*, 33. DOI: 10.1177/0032329205280928.

Gould, D. (2002). Life During Wartime: Emotions and the Development of ACT UP. *Mobilization: An International Journal*, 7:177–200.

Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6):1360–1380.

Granovetter, M. (1983). The Strength of Weak Ties: A Network Theory Revisited. *Sociological Theory*, 1:201–233.

Grebe, E. (2008a). Contingency, contestation and hegemony: the possibility of a non-essentialist politics for the Left. *Philosophy & Social Criticism*. forthcoming.

Grebe, E. (2008b). National and transnational networks of influence in South African AIDS treatment activism. Unpublished working paper.

Hannigan, J. A. (1985). Alain Touraine, Manuel Castells and social movement theory: A critical appraisal. *The Sociological Quarterly*, 26(4):435–454. DOI: 10.1111/j.1533-8525.1985.tb00237.x.

Hardt, M. and Negri, A. (2000). *Empire*. Harvard University Press, Massachusetts.

Hardt, M. and Negri, A. (2004). *Multitude: War and Democracy in the Age of Empire*. Penguin, New York.

Heckscher, C. (2006). Organizations, movements and networks. *New York Law School Law Review*, 50(2):313–336.

Johnston, H. (1985). Identities, Grievances, and New Social Movements. In Johnston, H., editor, *New Social Movements: From Ideology to Identity*.

Keck, M. E. and Sikkink, K. (1998). *Activists beyond borders: advocacy networks in international politics*. Cornell University Press, New York.

Keohane, R. O. and Nye, J. S. (1972). *Transnational Relations and World Politics*. Harvard University Press, Massachussetts.

Kriesi, H. (1996). The organisational structure of new social movements in a political context. In McAdam, D., McCarthy, J. D., and Zald, M. N., editors, *Comparative perspectives on social movements*, page 152–184. Cambridge University Press, Cambridge.

Kriesi, H., Koopmans, R., Duyvendak, J. W., and Giugni, M. G. (1992). New social movements and political opportunities in Western Europe. *European Journal of Political Research*, 22(2):219–244. DOI: 10.1111/j.14756765.1992.tb00312.x.

Kriesi, H., Koopmans, R., Duyvendak, J. W., and Giugni, M. G. (1994). *Hanspeter Kriesi and Ruud Koopmans and Jan Willem Duyvendak and Marco G Giugni*. Routledge, New York.

Laclau, E. (1990). *New Reflections on the Revolution of Our Time*. Verso, London.

Laclau, E. and Mouffe, C. (1985). *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. Verso, London.

McAdam, D. (1996). Conceptual origins, current problems, future directions. In McAdam, D., McCarthy, J. D., and Zald, M. N., editors, *Comparative perspectives on social movements*, page 23–40. Cambridge University Press, Cambridge.

McAdam, D., McCarthy, J. D., and Zald, M. N. (1996). Introduction: Opportunities, mobilizing structures, and framing processes — toward a synthetic, comparative perspective on social movements. In McAdam, D., McCarthy, J. D., and Zald, M. N., editors, *Comparative perspectives on social movements*, page 1–20. Cambridge University Press, Cambridge.

McAdam, D., Tarrow, S., and Tilly, C. (2001). *Dynamics of Contention*. Cambridge University Press, Cambridge.

Offe, C. (1985). New Social Movements: Challenging the Boundaries of Institutional Politics. *Social Research*, 52.

Olesen, T. (2006). 'In the Court of Public Opinion': Transnational Problem Construction in the HIV/AIDS Medicine Access Campaign, 1998–2001. *International Sociology*, 21(5):5–30. DOI: 10.1177/0268580906059288.

Smith, A. M. (1998). *Laclau and Mouffe: The radical democratic imaginary*. Routledge, London.

Smith, J., Pagnucco, R., and Chatfield, C. (1997). Social Movements and World Politics: A Theoretical Framework. In Smith, J., Pagnucco, R., and Chatfield, C., editors, *Transnational Social Movements and Global Politics*, page 59–77. Syracuse University Press, Syracuse.

Smith, R. A. and Siplon, P. D. (2006). *Drugs into Bodies: Global AIDS Treatment Activism*. Praeger Publishers, Connecticut.

Soysal, Y. (1994). *Limits of Citizenship: Migrants and Postnational Membership in Europe*. Chicago University Press, Chicago, Illinois.

Tarrow, S. (1996). States and opportunities: The political structuring of social movements. In McAdam, D., McCarthy, J. D., and Zald, M. N., editors, *Comparative perspectives on social movements*, page 41–61. Cambridge University Press, Cambridge.

Tarrow, S. (1998). *Power in Movement: Social Movements and Contentious Politics*. Cambridge University Press, Cambridge.

Tarrow, S. (2001). Transnational Politics: Contention and Institutions in International Politics. *Annual Review of Political Science*, 4:1–20. DOI: 10942939/01/0623-0001.

Tarrow, S. and McAdam, D. (2005). Scale Shift in Transnational Contention. In della Porta, D. and Tarrow, S., editors, *Transnational Protest and Global Activism*, page 121–147. Rowman & Littlefield, Maryland.

Taylor, R. (2004). Interpreting Global Civil Society. In Taylor, R., editor, *Creating a Better World: Interpreting Global Civil Society*, page 1–12. Kumarian Press, Connecticut.

Touraine, A. (1981). *The voice and the eye: An analysis of social movements*. Cambridge University Press and Editions de la Maison des Sciences de l'Homme, Cambridge.

Tvedt, T. (2004). Development NGOs: Actors in a Global Civil Society or in a New International Social System? In Taylor, R., editor, *Creating a Better World: Interpreting Global Civil Society*, page 133–146. Kumarian Press,

Connecticut.
UNAIDS (2007). *AIDS Epidemic Update: December 2007*. UNAIDS and WHO, Geneva. UNAIDS/07.27E/JC1322E.

Van Niekerk, A. A. (2005). Moral and social complexities of AIDS in Africa. In Van Niekerk, A. A. and Kopelman, L. M., editors, *Ethics and AIDS in Africa: The challenge to our thinking*, page 53–70. David Philip, Cape Town.

Wapner, P. (1995). Politics beyond the State: Environmental Activism and World Civic Politics. *World Politics*, 47:311–340.

Wasserman, S. and Faust, K. (1994). *Social Network Analysis: Methods and Applications*. Cambridge University Press, Cambridge.