

Networks and Religion: Ties that Bind, Loose, Build Up, and Tear Down

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Abstract

That social networks play a central role in religious life is well accepted by most social scientists. We are reasonably confident, for instance, that they are crucial for the recruitment and retention of members, the diffusion of religious ideas and practices, motivating individuals to volunteer and become politically active, the health and well-being of people of faith, and conflict, radicalization, and (sometimes) violence. However, in conference presentations, journal articles, and books social network analysts have shown little interest in exploring the interplay of networks and religion. In this paper, I review, and in some cases expand upon, what social scientists of religion have learned about networks and religion. I conclude with a call for social network analysts to focus the analytical tools of social network analysis on a phenomenon that has and continues to exert considerable influence in today's world.

Keywords

Networks, religion, social network analysis

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In one of the more impressive rants ever to ever appear in a footnote, at least in terms of its length and breadth, sociologist Christian Smith (2010:273-276) takes on network structuralists for what he perceives as their anti-religious bias. He notes that theology, religion, and faith repeatedly appear in their writings but seldom in a positive way. Instead, they use religion as a straw man over against which they pit their own theoretical musings. For example, Smith notes that Bruce Mayhew and Stephan Fuchs draw analogies between religious faith and what they call essentialist sociology (of which they disapprove): “The essentialist... is locked into a view of reality that has the character of religious conviction” (Mayhew, 1981:633); “Unlike religions, science is forward looking, not backward. A science cares for itself, not some social cause” (Fuchs, 2001:7). Similarly, Donald Black writes, “The value of science has been amply demonstrated during the past several centuries. What are its competitors? Religion? Metaphysics? Folklore?” (Black, 2002:105). And Harrison White traces social science’s obsession with the individual (of which he disapproves) to Christian theology:

Social science today begins, without apology, from person. Most present social science theories can be seen as exegesis on Enlightenment myths. These in turn took their presuppositions from Christian theology. Thus, the Enlightenment was formed by, even as it fought against, a theology of the soul, and the social sciences as its progeny remain enmeshed in the same presuppositions (White, 1992:23-24).

After arguing that these critiques are theologically and historically uninformed,¹ Smith speculates that network structuralists are hostile to things religious because Christianity and the social sciences have been rivals in the realm of higher education. There was a time when mainline and evangelical Christianity “held controlling positions of higher education, early science, publishing, and reform movements,” but they have since been supplanted by more secular actors:

Psychology displaced pastoral counseling, anthropology displaced missionaries, social work displaced the social gospel, and sociology displaced theological ethics and moral reform movements. That experience resulted in the construction over the twentieth century of American colleges and universities as havens of secularity in a broader society still largely “awash in a sea of faith”... It also established the social sciences... as the structural and therefore symbolic rivals of religion. In which case, discursive work aimed at strengthening the superior authority of social science... will naturally underscore the contrast between its scientific and reliable knowledge and the superstitious and errors of religious faith (Smith, 2010:276).²

Whether Smith’s characterization of network structuralism is accurate, network analysts do appear to have little or no interest in exploring the interplay of networks and religion. A review of presentations at Sunbelt, the annual meeting of the *International Network of Social Network Analysis*, from 2001 to 2014, found that less than one percent of the papers presented did the term religion or one associated with religion (e.g., Christianity, Judaism, Jew, Muslim, spiritual, scripture, clergy) appear in the title or abstract. Similarly, very few articles concerning religion have appeared in the pages of *Social Networks*,

¹ For instance, Smith notes that the notion of the soul, which some network analysts equate with atomistic human action, derives from Greek philosophy and not Judaism or Christianity. He also points out that Christian orthodoxy’s relational ontology (i.e., the doctrine of the Trinity) is such that “if network structuralism were to find an isomorphic counterpart in any religious worldview, then Christianity should be a naturally prime candidate” (Smith, 2010:275).

² See also, Smith (2003a).

Connections, or the *Journal of Social Structure*, and the *SAGE Handbook on Social Network Analysis* (Scott and Carrington, 2011) includes no chapters on networks and religion. In fact, religion is not even mentioned in the index.³

All of this is surprising considering the central role that most social scientists believe social networks play in religious life. In what follows, I review, and in some cases extend, some of what social scientists have learned about the role that networks play in the religious life of individuals and communities. Although I make no claims that this review is exhaustive, it does capture most of the ways that social scientists believe social networks and religion interact. It begins with an overview of how social ties bind people of faith together. For example, it explores how they facilitate the recruitment of individuals to faith communities and then pressures them to conform to the community's accepted norms and behavior. It also considers studies that have shown that people with ties to a group's core is far less likely to leave than are those without such ties, a finding, as we will see, that helps explain the homogeneity of faith communities. Next, it turns its attention to how ties connect religious ideas and people of faith to the wider world. In particular, it examines how religious ideas and practices (e.g., rabbinic Judaism) have spread through social ties, as well as how ties formed in communities of faith encourage people to volunteer, vote, become politically active, and donate to charity. This is followed by a review of how the networks of faith communities are structured and how they contribute to the well-being of their members. Perhaps unsurprisingly, the topography of religious congregations (e.g., their density) varies considerably, and this appears to be a function of a congregation's theological leanings and social class. Congregational networks also play a key role in the health and happiness of their members. In particular, there is a positive association between religion and physical and mental health and examine why many social scientist believe that much of this can probably be attributable to the networks in which people of faith are embedded. Finally, this review explores how some social network formations are more likely to give rise to conflict and violence than are others. Available evidence suggests that not only can very dense religious networks lead to internal conflict, but also they can be a primary cause lying behind radicalization and violence.

The paper concludes by noting that only a handful of the studies exploring religion and networks use what social network analysts refer to as whole network data, that is, network data that, at least in theory, include all relevant actors and ties between actors. Instead, most studies rely on survey questions that serve as proxies for social networks, which seldom capture the social context in which religious beliefs and practices are embedded. As Cheadle and Schwadle (2012:1198) note, "most quantitative research on American religion is now based on surveys of unconnected individuals, with the result that the social context of religion is obscured." This is not to suggest that religious scholars are pleased with this state of affairs; they are not, but their hands are "tied by design and method" (Cheadle and Schwadel, 2012:1199) Thus, the paper closes with a call for social scientists, and in particular social network analysts, to focus the analytical tools of social network analysis on a phenomenon that continues to exert a powerful influence, for both good and for ill, in today's world (Barrett, 2011; Berger, 1999; Micklethwait and Wooldridge, 2009; Stark, 1999; Toft et al., 2011).

³ Sociologists of religion often treat social networks as an afterthought as well. A review of five leading introductory texts to the sociology of religion (Christiano et al., 2008; Davie, 2013; Emerson et al., 2011; McGuire, 2002; Roberts and Yamane, 2012) turned up no mention of social networks in the table of contents or the indexes. As we will see, however, many have a profound interest in the interplay of networks and religion. It is just that seldom is actual social network data used in their analyses.

Ties That Bind

Conversion and Conformity

If there is anything that comes close to a law in the social sciences is that religious groups, or at least successful ones, recruit through their social ties. We know that people are far more likely to join a religious group where they know someone than where they do not. For example, Lofland and Stark (1965) found that those who ultimately joined the Moonies tended to be those whose ties to group members exceeded their ties to nonmembers. This led them to conclude that conversion is less about “seeking or embracing an ideology” and more about “bringing one’s religious behavior into alignment with that of one’s friends and family” (Stark, 1996a:16-17). Similarly, Stark and Bainbridge (1980) found that people were much more likely to join the Mormon church if they first formed friendships with existing Mormons, and David Snow and his colleagues (Snow et al., 1980) found that most social movements (religious or otherwise) recruit through their social ties. The lone exception was the Hare Krishnas, who demanded exclusive participation from their members and required them to sever all external ties; thus, they had no ties outside of the group through which they could recruit.

Subsequent studies have yielded similar results. For example, Mears and Ellison (2000) found that those most likely to participate in New Age groups or activities were those who were embedded in within interpersonal networks composed of other New Age devotees. Similarly, David Smilde’s (2005) found that the majority of converts to Venezuelan evangelicalism did so through social ties although other factors sometimes played a role. And Marc Sageman’s (2004) study of the global Salafi jihad (GSJ) uncovered that 83 percent of the individuals who joined the GSJ joined through some sort of social tie, which led him to conclude that although broad socioeconomic factors (e.g., anger at U.S. policies) may have increased the potential pool of GSJ recruits, in general only those with a tie to the movement actually joined. To be sure, there are occasional exceptions to the rule. For instance, Vala and O’Brien (2007) contend that China’s illegal house churches recruit a substantial number of members outside of the group’s social networks.⁴ Nevertheless, in most cases people join communities of faith where they already know someone.

One way to interpret these findings is that as people are drawn structurally closer to groups they are more likely to conform to the norms and practices of those groups. What about people who are already members of a group? Research has found that they are far more likely to conform when they are embedded in dense networks rather than sparse ones. One reason is that dense networks make it easier for groups to monitor the behavior of their members and prevent them from engaging in deviant behavior (Bott, 1957; Coleman, 1990; Granovetter, 1992, 2005). For example, the perception that some individuals may not be fully committed to a group’s beliefs can lead to gossip that harms their reputations (Burt and Knez, 1995). Another reason is that people are more likely to conform to social norms when they run the risk of losing ties to people they care about:

When we are alone even the most respectable of us act in ways we would not were anyone present. People who have no relationships with family or close friends, or whose relationships are with persons far away, are essentially alone all the time. They do not risk their attachments if they are detected in deviant behavior because they have none to lose (Finke and Stark, 2005:35).

⁴ Although they do not address Vala and O’Brien’s study directly, Stark and Wang (2015) present evidence to the contrary. In particular, the note that 90 percent of rural Chinese Christians “had their initial contact with Christianity through interpersonal ties: through acquaintances, family members, or neighbors” (Stark and Wang, 2015:105).

And people who are embedded in dense networks are probably more likely to possess ties they are reluctant to lose (i.e., strong ties) than are those embedded in sparse networks, social conformity tends to be more common in the former than in the latter. That is why frontier areas, like the Wild West, tend to be short on piety and long on deviance. People are constantly passing through on their way to somewhere else, which makes it difficult for ties (and institutions) to form (Finke and Stark, 2005).

Adamczyk and Felson (2006) uncovered similar dynamics with regards to adolescent sexual debut (i.e., sexual intercourse for the first time). They found that it was less likely for adolescents who were embedded in dense social networks composed of religious friends.

Adolescents [who] spend a lot of time with religious friends... should become more attached to them and be exposed to more negative messages about extramarital sex. By having premarital sex, which violates religious precepts, teens... jeopardize relationships with religious friends... Likewise, in dense networks, adolescents should be more successful in monitoring each other's actions" (Adamczyk and Felson, 2006:927, 929).

In other words, the greater the proportion that an adolescent's friends were religious, the greater the likelihood he or she would conform to the teachings of their faith communities (assuming, of course, that most faith communities discourage premarital sex), whether they did so because of the monitoring of other members, the fear of losing valued ties, or the combination of both.⁵

The pressure to conform can sometimes lead marginal church members to participate even when they have little or no desire to do so. Take the Black Church, for example. Scholars have argued that because it has historically served as the African-American community's primary instrument of communication, entertainment, education, mutual-aid, and, at least for males, a vehicle for upward mobility, it is something of a semi-involuntary institution (Ellison and Sherkat, 1995; Lewis, 1955; Lincoln and Mamiya, 1990; Nelsen and Nelsen, 1975). Some people attend worship services and participate in church activities not for religious rewards but in order to avoid the sanctions they would incur if they did not. Many scholars also believe that this is truer for those living in the rural South than those living outside of it because, at least historically, they have had access to fewer secular opportunities for achieving personal status and prestige (Ellison and Sherkat, 1990; Nelsen, 1988; Taylor, 1988a, b). This has led them to argue that not only should African Americans in the rural South display the highest rates of attendance, but they should also display the highest rates of intermittent attendance because those who do not want to attend but feel compelled to do so will only attend often enough in order to maintain their social standing within the community.

⁵ Other studies (Bearman and Brückner, 2001; Manlove et al., 2008; Regnerus, 2008) suggest that embeddedness in religious networks delays more than it stops sexual debut.

Table 1: Church Attendance and Participation Levels

	Levels of Church Attendance		
	Rural South	Urban South	Non-South
Nearly every day	4.4%	4.7%	3.7%
At least a once a week	35.6%	34.6%	29.9%
A few times a month	40.7%	30.5%	20.9%
A few times a year	9.8%	17.5%	21.3%
Less than once a year	4.6%	6.1%	13.3%
Not since age 18	4.9%	6.8%	11.1%
	Levels of Participation in Other Church Activities (Percentage)		
	Rural South	Urban South	Non-South
Nearly every day	2.5%	2.8%	2.4%
At least a once a week	18.2%	16.2%	14.8%
A few times a month	31.0%	18.7%	12.7%
A few times a year	15.7%	14.7%	12.3%
Never	32.7%	47.6%	57.7%

Source: Ellison and Sherkat (1995:1423)

Using data from the 1979-80 National Survey of Black Americans, Ellison and Sherkat (1995) found that this was indeed the case (see Table 1). In the rural South 90.5 percent of respondents indicated they attended church a few times a year or more, as compared to respondents in the urban south (87.1%) and non-south (75.6%). Moreover, the rates of intermittent attendance (i.e., attending church a few times a month) are far higher in the rural South (40.7%) than in the urban South (30.5%) and non-South (20.9%). Rates of participation in other types of church activities, which are presented in the lower panel of Table 1, reveal a similar pattern.

More directly related to this paper, their multivariate analysis found that the *frequency of contact with friends* was a statistically significant predictor of church attendance and participation for African Americans in the rural and urban South but not for those living outside of the South, suggesting that social ties have a conforming affect on religious behavior for African-Americans living in the South. Moreover, the effect is larger in the rural South than it is in the urban South. These results, of course, do not irrefutably establish that the social networks of rural and urban southern African-Americans lead some to participate in their local church when they otherwise would not (see e.g., Hunt and Hunt, 1999; see response by Ellison and Sherkat 1999). “Frequency of contact with friends” is a weak proxy for an individual’s social network. Nevertheless, the results of their study are consistent with the semi-involuntary thesis.

Retention and Defection

Like all human groups, people of faith tend to cluster with similar others, and homophily-based clustering can help explain why some people are more likely to leave groups than are others. For example, Stark and Bainbridge (1980) examined a “doomsday” group that was certain the end of the world was imminent. The group formed primarily along kinship ties, and Stark and Bainbridge found that members who had direct ties to the group’s leaders were less likely to leave the group (i.e., defect) than were others:

Members who were direct kin of the leaders, only 14% quit. Of those who were related to kin of the leaders, but not directly to the leaders (e.g., in-laws), 25% defected. But of those who had no relatives in the group, two-thirds left prematurely. For those who had to abandon their families as well as their faith, defection was rare. But for those without familial ties to the group, defection was the rule! (Stark and Bainbridge, 1980:1383).

Other studies have confirmed this tendency. For example, Popielarz and McPherson (1995) studied voluntary organizations in general (not just religious groups) and discovered that they lose members located at the edge (i.e., the periphery) of their group faster than they do core members, primarily because peripheral members have fewer ties within the organization and more without than do core members, which means they are more likely to have other groups competing for their time and money.

The core-periphery dynamic can help explain why interracial faith communities are rare. Emerson and Smith (2000), for instance, draw on it, in part, in order to explain why a Seattle church’s attempt to establish an interracial church proved unsuccessful. The church was founded by an African-American pastor, who prior to founding the church, visited white and black churches in the area, sharing with them his vision of an interracial church and asking for volunteers to be charter members. After a year of preparation, the church held its first public service, and the congregation was almost evenly split between blacks and whites (Emerson and Smith, 2000:147). As the church grew, however, the congregation began losing its white members, and within three years, fewer than 10 remained. The first few who left (all of whom were charter members) claimed they did so because they felt like outsiders and their opinions were not being heard. Regardless as to whether their perception of the situation was accurate, their decision to leave ultimately had a deleterious effect on the church’s make-up:

There were fewer within-church social network ties to keep white there and recruit new white members. Whites leaving also meant an increasingly great number of social ties outside the church for the remaining whites, making the church less central for them, and making them feel increasingly like outsiders, and that their needs were not being met (Emerson and Smith, 2000:149).

Ties That Loose

Diffusion and Innovation

A key assumption of social network analysis is that social ties function as conduits for the spread of material and nonmaterial resources. Perhaps the best-known example of this is Granovetter’s (1973, 1974) discovery that people were far more likely to have used weak rather than strong ties in finding their present job, which led him to conclude that whatever is diffused will reach more people and travel a greater social distance if it passes through weak rather than strong ties (Granovetter, 1973:1366). Unsurprisingly, the spread of ideas and practices occurs across religious networks. For example, Adams and Trinitapoli (2009:280) found that the social networks in which Malawi religious leaders are

embedded influence the degree to which they are involved in HIV prevention and the types of strategies they employ, and Levy-Storms and Wallace (2003) found that Samoan women who were well connected to their church-based networks were more likely plan to have or already have had a mammogram. In a novel application of the network approach, Kim and Pfaff (2012) uncovered evidence that Protestant Reformation ideology spread through city-to-university ties with students functioning as bridges between the two. In particular, they found the greater the number of students that a city sent to a pro-reform university (e.g., Wittenberg, Basel), the greater the likelihood the city would later embrace reform. Interestingly, the opposite was also true. The greater the number of students that a city sent to an anti-reform university (e.g., Cologne, Louvain), the greater the likelihood the city would later reject reform.

In an interesting application of social network analysis, archeologist Anna Collar (2013) found epigraphical (inscriptions) evidence that social networks were instrumental in the spread of Rabbinic Judaism across the Mediterranean in the early Roman Empire. She contends that prior to the destruction of the Jerusalem Temple in 70 CE, Diaspora Jews did not overtly advertise their culture and identity (Collar, 2013:229), but this all changed with the Temple's destruction. She notes that the evidence indicates that after the Temple's destruction there was a "widespread dissemination and adoption of explicitly Jewish names, symbols, and language" through the ethnic network of the Jewish Diaspora across the Mediterranean world.

The indicators found on Jewish monuments that reflect an increased awareness of a common Jewish practice, history, and behaviour include specifically Jewish symbols as referents to a universalized ritual and the religious calendar, and the use of Hebrew as a marker of education and a revived knowledge of the sacred texts, Torah, Jewish Law, and Jewish history. In addition, the increasing use of specifically Jewish name forms provides a subtle indication of the universal engendering of a more strongly defined Jewish identity, matched by the trend during the 3rd–4th centuries ad for individuals to define themselves as 'Jews' or, more often, as 'Hebrews' (Collar, 2013:230).

Interestingly, she argues it was strong, rather than weak, ties that played the key role in this diffusion "that the new religious authorities in Palestine used the highly influential strong-tie 'familial' connections of the ethnic network of the Diaspora to transmit the religious and social discipline of rabbinic Judaism" (Collar, 2013:230).

Diffusion also occurs across religious organizations. As DiMaggio and Powell (1983) and Meyer and his collaborators (e.g., Meyer et al., 1997; Meyer and Rowan, 1977) have noted, the policies and practices of one organization are often passed on to other organizations with which they have ties. This occurs, they argue, because organizations feel pressure to adopt policies and practices that are seen as providing them with aura of legitimacy. Chaves (1996) drew on this insight in order to explore the diffusion of the ordination of women in Protestant denominations, and he found that Christian denominations that were not currently ordaining women as pastors and priests but had ties to denominations that did were *14 times more likely* to start ordaining women than were denominations that did not have such ties. And Matthews et al. (2013) studied how (and if) theological beliefs and practices diffused among denominations associated with the Radical Reformation (primarily Anabaptists). They found that most beliefs diffused between denominations if their leaders of the different denominations knew one another. The one notable exception was violent theologies (ideologies), which tended to be inherited from parent congregations (which, of course, is a type of tie as well).

Politics and Community

Research suggests that religious networks can help facilitate volunteerism and civic engagement (Greeley, 1997; McClure, 2015; Merino, 2013; Schwadel et al., 2015). In fact, substantial evidence exists that indicates that when it comes to charity and volunteering, people of faith contribute far more of their time and money than do their secular counterparts. To be sure, they donate much of their money and time to religious institutions (e.g., local synagogues, Habitat for Humanity), but they also donate substantial amounts to secular institutions. In fact, they do so *at higher rates than their secular counterparts* (Brooks, 2006; Stark, 2012). For example, Beyerlein and Sikkink (2008) found that individuals who attend church regularly were more likely to volunteer for 9/11 relief efforts than were those who did not (see also, Beyerlein and Vaisey, 2013). Similarly, Lewis, MacGregor, and Putnam (2013) found that after controlling for religious tradition, religious attendance, number of friends, and sociability, religious social networks (as opposed to secular ones) have a positive affect on volunteering, informal giving, attending public meetings, participating in a political activity, and the number of political activities in which people participate. Interestingly, however, religious social networks do not appear to positively affect donating to a secular charity (although religious attendance does). All this is not to suggest that nonbelievers do not contribute to secular (and non-secular) institutions. They do. It is just that, on average, people of faith contribute and volunteer more (Regnerus et al., 1998; Stark, 2012:114-120).

Why this is so is the subject of some debate, but most agree that social networks play a pivotal role. Just as social ties connect people to communities of faith, they also link them to activities for volunteering and activism (Smith, 1996). In fact, some argue that social ties matter more than religious beliefs:

Social networks, rather than beliefs, dominate as the mechanism leading to volunteering and it is the social networks formed within congregations that make congregation members more likely to volunteer (Becker and Dhingra, 2001:329).

Downplaying the role of beliefs as Becker and Dhingra do is problematic, however, since evidence suggests that beliefs are a driving force behind the topographical features of networks. For example, the social networks of theologically strict groups, that is, those whose beliefs place high demands on peoples' time, money, and behavior, tend to be denser than those of theologically lenient ones (Iannaccone, 1994; Stark and Bainbridge, 1985), which, in turn, may affect volunteerism levels.

Social networks can also facilitate political influence. In a study of evangelical elites, Lindsay (2006, 2007, 2008) found that the boards of leading evangelical organizations were populated with individuals from across the business, political, entertainment, and higher education spectrum, and evangelical elites have used these networks to expand their influence and legitimate the place of evangelicalism in American society. Their attempts at bringing about desired social change has not been entirely successful, but through their networks they have gained a place at the table so that their voice is consistently heard.

Ties That Build Up

Religion, Networks, and Social Class

Although weak ties can be strong, so can strong ties. As Granovetter (1983) notes, strong ties have greater motivation to be sources of support in times of uncertainty. Indeed, there is substantial evidence that “people with strong ties are happier and even healthier, because in such networks members provide one another with strong emotional and material support in times of grief or trouble and someone with whom to share life’s joys and triumphs” (Stark, 2007:37). Not surprisingly, peoples’ networks differ in terms of their mix of weak and strong ties, ranging from local or provincial ones, consisting primarily of strong, redundant ties and very few weak ties, to worldly or cosmopolitan ones, consisting of numerous weak ties and very few strong ties (Everton, 2012). Moreover, the composition of these networks is not distributed randomly through the population but instead varies by socioeconomic class. The networks of individuals of lower socioeconomic status tend to be more provincial, while those of individuals of higher socioeconomic status tend to be more cosmopolitan (Bott, 1957; Granovetter, 1973, 1983).

The composition of peoples’ networks can be mapped on to the church-sect continuum, which has its roots in a typology developed by Max Weber (1949; 1958; 1971). Weber argued that churches are relatively inclusive in that the children of adult members are considered members once they are baptized, whereas sects are exclusive in that they demand that prospective members undergo a conversion before becoming members. Although Weber introduced the typology, it was his pupil, Ernst Troeltsch (1960), who popularized it examining the two dominant types of Christian faith communities of 19th-Century Europe. Troeltsch modified Weber’s typology by identifying additional characteristics of both the church- and sect-types that further differentiated them from one another. However, when other social scientists attempted to match the typology with religious groups in other times and places, they discovered that the match was seldom a good one. There were few pure churches and sects, and what might be a sect in one society was more of a church in another.

Johnson (1957, 1963, 1971) recast the typology as a continuum based upon the degree to which a religious group is in a state of tension with its social environment. He defined the ideal church-type as a religious group that accommodates itself to its social environment (low-tension) and the ideal sect-type as a religious group that rejects its social environment (high-tension). In Johnson’s model, the two types serve as poles on either end of the continuum, rather than as two distinct types into which all religious groups must fit. Johnson’s approach allows social scientists to first measure the tension level between religious groups and their surrounding social environment, and then explore the relationships that exist, if any, between various factors and these groups (see Table 2).⁶

Stark and Bainbridge (1979, 1985) have noted that the networks of theologically conservative churches are typically denser than those of theologically liberal ones. Members of the former were more likely to say that more than half of the people they associate with were from their congregation than are members of theologically liberal ones; similarly, a far higher percentage of members of conservative churches responded that three or more of their closest friends were members of their congregation than those from liberal churches (see Table 3).⁷

⁶ The survey data used by Stark and Bainbridge is from the *Survey of Northern California Church Bodies, 1963*, which was conducted by Charles Y. Glock and Rodney Stark (1966; 1968) and can be downloaded from the *Association of Religion Data Archives*, www.TheARDA.com.

⁷ Ibid.

Table 2: Sociocultural Tension by Theological Tradition

	Protestants						Roman Catholics
	Low Tension	Medium Tension	High Tension				
			Southern Baptist	Assemblies of God	7 th Day Adventist	All Protestants	
Only those who believe in Jesus Christ can go to heaven	13%	39%	92%	89%	77%	36%	12%
Being of the Hindu religion would definitely prevent salvation	4%	15%	32%	41%	17%	14%	2%
Darwin's theory of evolution could not possibly be true	11%	29%	72%	91%	94%	30%	28%
It is completely true that the Devil actually exists	14%	38%	92%	96%	97%	37%	66%
The respondent disapproves of dancing	1%	9%	77%	91%	100%	18%	1%
Drinking liquor would definitely prevent salvation	3%	3%	15%	30%	46%	7%	2%

Source: Stark and Bainbridge, 1985:43-58

Table 3: Network Density by Theological Tradition

	Protestants						Roman Catholics
	Low Tension	Medium Tension	High Tension				
			Southern Baptist	Assemblies of God	7 th Day Adventist	All Protestants	
Half or more with whom the respondent associates are members of their congregation	29%	39%	51%	75%	69%	38%	47%
3 or more of the respondent's five closest friends are members of their congregation	22%	25%	49%	66%	83%	29%	36%

Source: Stark and Bainbridge, 1985:61

Why? Because, as noted earlier, theologically conservative churches tend to be stricter with regards to how often members are expected to attend and with whom they can associate (Iannaccone, 1994). Members are expected to attend worship services on a regular basis, and they are often discouraged from socializing outside of the congregation or the faith, associating with secular organizations, and participating in secular activities. With such prohibitions in place, almost by default, members of such congregations will form ties with people from their congregations at a greater rate than will members of more lenient organizations. This, in turn, causes stricter religious groups to be more interconnected than lenient ones because of the tendency for friends of friends to become friends.

Stark and Bainbridge also noted that there is another type of religious group that is not captured by the church-sect continuum: cults or independent religious traditions (IRTs).⁸ Like sects, IRTs exist in a high state of tension with their sociocultural environments, but unlike sects, they do not have ties to an established religious tradition in their particular society. Sects leave a “parent body, not to form a new faith, but to reestablish the old one.” They “claim to be the authentic, purged, refurbished version of the faith from which they split” (Stark and Bainbridge, 1979:125). IRTs, on the other hand, arise either by being imported from another society (e.g., Zen Buddhism in the United States and Christianity in India) or through cultural innovation—when new religious insights and succeeds in attracting followers (e.g., Mormonism in the United States).⁹

IRTs differ from sects in another respect: While sects tend to attract people of lower socioeconomic status, IRTs tend to attract people of higher socioeconomic status (Stark, 1996a:39-44). This is because people who join new faiths generally find older, established faiths unsatisfying, and those who are most like to be dissatisfied with established religions are the highly educated. This may seem counterintuitive, but conversion to a new religion generally involves being interested in new culture and new ideas, and the better educated are more capable of consuming and mastering new ideas (Stark, 1996a:38). That is why in the United States, Zen Buddhism and Mormonism tends to appeal to people with higher levels of education (Stark, 1996a), while in China it is evangelical Christianity that is attracting socioeconomic elites (Stark and Wang, 2014, 2015).

All this has interesting implications for the density of IRT networks. On the one hand, their high-tension should pressure their networks to be denser, more provincial; on the other, because they are disproportionately composed of people with higher levels of education, there should be countervailing pressure pushing them to be sparser, more cosmopolitan. It follows from this that the density of IRTs will be greater than churches but sparser than sects. This is confirmed in Table 4, which includes data from Table 3 but includes additional data on Mormon networks collected using an identical survey instrument at the same time and in the same location as those used by Stark and Bainbridge.¹⁰ We can see that a

⁸ I prefer the term, independent religious tradition over the more common term, new religious movement, because not all IRTs are “new.” Some may be new to a particular society (e.g., Zen Buddhism in the U.S. in the 1960s), but they are not new to other societies.

⁹ Scholars debate whether Mormons should be considered a branch of Christianity or a separate religion. Mormons typically consider themselves to be Christians but it is unclear whether other Christians feel the same way. Here I follow Stark (Stark, 1984, 1996a, 2005) and treat the Mormon church as an IRT.

¹⁰ *San Francisco Survey of Mormons, 1967-1969*, were collected by Armand L. Mauss. Survey data were downloaded from the *Association of Religion Data Archives*, www.TheARDA.com. Percentages calculated by author. As noted above (footnote 5), Stark and Bainbridge used data collected by Glock and Stark (1966) for their analysis, and Mauss’s (1970) survey questions “were intentionally guided by those of the Glock and Stark instrument and were carried out during the principal investigator’s doctoral studies under Glock.” See <http://www.thearda.com/Archive/Files/Descriptions/SFMORM.asp>.

higher percentage of Mormons (39%) than members of medium and low-tension groups (i.e., churches) indicate that three or more of their closest friends are members of their congregations. This percentage, however, is lower than high-tension groups (i.e., sects), such as Southern Baptists, Assemblies of God, and Seventh Day Adventists.

Religion, Health, and Happiness

There is general agreement that a positive association exists between religion and physical and mental health (Koenig, 2008; McCullough and Smith, 2003; Shor and Roelfs, 2013). Death rates for several major diseases are much lower for regular worshipers (Koenig et al., 2001), and the life expectancy of frequent religious attenders is 7.6 years longer than non-attenders (Hummer et al., 1999). Clergy, monks, and nuns have a lower death rate (Flannelly et al., 2002), and they are less likely to die from heart attacks, most cancers, suicide, and accidents (Beit-Hallahmi and Argyle, 1997). People of strong faith also tend to enjoy better mental health, higher levels of life satisfaction, greater personal happiness, and fewer negative psychological consequences of traumatic life events (Beit-Hallahmi and Argyle, 1997; Ellison, 1991; Koenig et al., 2001:124-128; Stark, 2012:93-111; Witter et al., 1985).

Be that as it may, there is little consensus as to why religion contributes to health. Common explanations argue that people of faith (1) adopt healthier life styles, (2) have access to additional psychological resources, and/or (3) possess more robust social networks (Smith and Denton, 2005). There is substantial evidence that all three factors play a role. For example religious involvement probably facilitates well-being by regulating behavior in ways that decrease the risk of disease, such as discouraging alcohol and substance abuse and promoting an ethic of moderation. Moreover, most religious communities discourage risk-taking and deviant behaviors, provide moral guidance about sexual behavior and family life, and shape other lifestyle choices (e.g., business ethics) in ways that may reduce exposure to various stressful events and conditions. Smith and Denton (2005), for instance, found that adolescents who were deeply embedded in their religious congregations were far more likely to report high levels of subjective well being and less likely to engage in risky behaviors. Although they identify a number of contributing factors, they specifically point to the role that social networks play. In particular, they note that when youth are embedded in dense congregational networks, these networks not only can provide additional oversight (i.e., in addition to their parents), but they can encourage positive life practices while discouraging negative ones (Smith, 2003b:25-26; Smith and Denton, 2005:247-248). They also point to the important role of “extra-community” links. They argue that ties to national and transnational religious organizations provide youth with positive experiences that go beyond their local communities, which expand their horizons, foster their maturity, and enhance their abilities (Smith, 2003b:26; Smith and Denton, 2005:248).

Table 4: Network Density by Theological Tradition including Mormons

	Protestants						Mormons	Roman Catholics
	Low Tension	Medium Tension	High Tension					
			Southern Baptist	Assemblies of God	7 th Day Adventist	All Protestants		
3 or more of the respondent's five closest friends are members of their congregation	22%	25%	49%	66%	83%	29%	39%	36%

Source: Stark and Bainbridge, 1985:61, and San Francisco Survey of Mormons, 1967-69. The data were downloaded from the Association of Religion Data Archives, www.TheARDA.com, and were collected by Armand Mauss, PI.

Religion can also provide people with psychological resources that contribute to better health. Rituals such as prayer in moments of anger or distress may help diminish the potentially harmful effects of negative emotions (Pargament et al., 1998). Individuals can gain a sense of self-worth and control by developing an ongoing personal relationship with a God who loves and cares for them unconditionally and with whom they can interact regularly through prayer, meditation and various rituals (McFadden and Levin, 1996).¹¹ Religion can also provide individuals with resources for coping during periods of high stress, such as when a loved one dies, an unexpected calamity strikes, or a health problem arises (Beit-Hallahmi and Argyle, 1997; Pargament et al., 1998), and it can play a significant role in helping individuals assign meaning to problematic events and conditions (Pargament and Park, 1995). The hope and optimism that personal faith often inspires may also help promote mental (and by extension) physical health (McFadden and Levin, 1996).

Faith communities also provide opportunities for regular interaction and friendship formation among like-minded people, which tends to enhance their subjective well-being. For example, Lim and Putnam (2010) found that people with a strong religious identity who regularly attend religious services and build social networks in their congregations are more satisfied with their lives than are others. And, Brashears (2010) found that contact with religiously similar others when paired with religious belief reduces anomia and the likelihood of unhappiness. Frequent churchgoers also report larger social networks, more favorable perceptions of the quality of their social relationships, and more types of social support received (Ellison and George, 1994). The latter has proven crucial in terms of mental and physical health. Church members support one another in various ways. They provide spiritual support (confirmation of religious beliefs), emotional comfort (it is easier to bear an illness or a depressing event in the company of friends than alone), and actual aid (e.g., goods and services – taking meals to people when they are sick, ministry).

There do appear to be limits to the benefits of dense networks, however. Pescosolido and Georgianna (1989) demonstrated that the density of peoples' social networks has a curvilinear relationship to suicide. Individuals whose social networks are very sparse or very dense are far more likely to commit suicide than are those whose networks lie between the two extremes. Why? Because individuals located in sparse social networks often lack the social and emotional ties that provide them with the support they need during times of crisis. They also typically lack ties to others who might otherwise prevent them from engaging in self-destructive (i.e., deviant) behavior. On the other hand, individuals embedded in dense networks are often cut-off from people outside of their immediate social group, which increases the likelihood that they will lack the ties to others who would otherwise prevent them from taking the final, fatal step.

Ties That Tear Down

Conflict and Cohesion

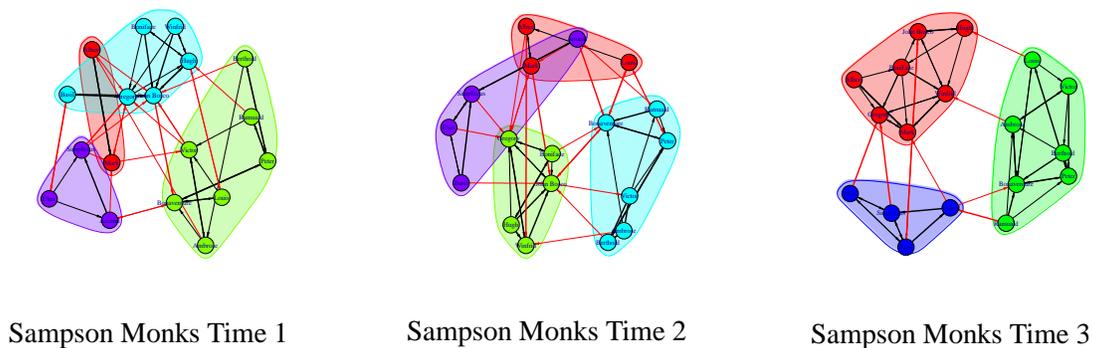
Georg Simmel ([1908] 1955) was one of the first social theorists to highlight the interrelationship between conflict and cohesion. He noted that while conflict has its destructive aspects, it also has its benefits, such as promoting group cohesion, solidarity, and cooperation. About a half a century later, Lewis Coser (1956) built on Simmel's insights and argued that conflict has several positive functions (Emerson et al., 2011:64). First, it helps clarify boundaries between groups by identifying who is a member and who is not. Second, it solidifies group identity; when outsiders challenge a group, in order to "fight back," members have to

¹¹ Of course, God does not have to exist in order for this to happen—all that matters here is that individuals perceive that the relationship is genuine.

know who they are in relation to those outsiders. Third, it increases social cohesion and, in fact, is often necessary for maintaining social cohesion. Fourth, it increases ideological solidarity as members think more and more alike one another. And finally, groups in conflict are better able to mobilize resources than are those that are not (Emerson et al., 2011:64).¹²

A variation on some of these dynamics played themselves out among the monks that Samuel Sampson (1968) observed over the course of year at a Roman Catholic monastery. During Sampson’s stay at the monastery, a “crisis in the cloister” occurred in reaction to some of the changes instituted by the Second Vatican Council (aka, Vatican II). The changes attempted to modernize the Roman Catholic Church and included such things as saying the Mass in the vernacular (rather than in Latin) and granting clergy and nuns the freedom to dress in secular garb. This conflict ultimately resulted in the expulsion of four monks and the departure of several others. In the end, only four monks remained. As illustrated by Figure 1, which maps the liking networks of the monks over three time periods, the monks increasingly sorted themselves into three distinct and cohesive coalitions.¹³ In this case the conflict emerged from within the group rather than from without. Thus, boundaries were drawn between subgroups holding different positions regarding the Vatican II reforms and social cohesion increased within these subgroups.

Figure 1: Sampson’s Monks Over Three Time Periods



Some social network formations are more likely to give rise to conflict than are others. Take, for example, Benjamin Zablocki’s (1980) study of utopian communities in the United States. He and his graduate students located numerous communes and collected data, including social network data, on several of them. They asked each commune member to rate their relationship with every other member on a number of different dimensions (e.g., loving, jealous, sexual, hateful, exciting etc.) and only considered that a tie existed between two members if both indicated that one did. Thus, for example, if two members indicated that their relationship was a loving one, Zablocki and his students considered that a loving tie

¹² Since Simmel and Coser, other social theorists have highlighted many of the same dynamics. See, for instance, the work of anthropologist Scott Atran (2010) and the social psychologist, Jonathan Haidt (2012). Even former U.S. President Ronald Reagan recognized the benefits of conflict: “I couldn’t help but say to [Mr. Gorbachev], just think how easy his task and mine might be... if suddenly there was a threat to this world from another planet. [We would] find out once and for all that we really are all human beings on this earth together” (cited in Atran, 2010:66).

¹³ The actors’ colors in each figure represent the communities into which the actors were sorted using the Girvan-Newman (2002) community detection algorithm. The figures were created in R using the igraph library (Csárdi and Nepusz, 2006).

existed between the two. They then classified the communes in terms of the density of loving ties (i.e., the proportion of the ties that were “loving”), what they called the level of “emotional cathexis.” Classifications ranged from “cold” to “smoldering” (see Table 5), the former characterized by very few loving ties and the latter by numerous.

Table 5: Emotional Cathexis and Commune Turnover and Disintegration Rates

	Emotional Cathexis				
	Cold	Cool	Warm	Hot	Smoldering
Turnover Rate	28%	50%	55%	63%	65%
Disintegration Rate	0%	0%	8%	33%	60%

Source: Zablocki, 1980:165

At the time a widely-held assumption at the time was that “free love” communes, that is, communes where anyone and everyone could love whomever they wanted, would be more stable than those that placed restrictions on peoples’ behavior, but that is not what Zablocki found. As Table 5 indicates, the free love communes (i.e., “Hot,” “Smoldering”) were the least stable. On average they exhibited far higher turnover rates and were far more likely to disintegrate than were the more restrictive ones (Zablocki, 1980:165). Why? “Too much relatedness can be as harmful for social structure as too little” (Zablocki, 1980:180). As Stark later observed:

Despite the ideology of “love one another,” in practice there wasn’t enough time, enough energy, or the inclination to actually love everyone equally. Thus, although communes were based on the ideal that everyone would be equal, and although members tried to share all material things in common, they overlooked the fact that love, too, is a valuable “good” and that it is far harder to parcel it out equally than it is to give everyone the same clothing allowance. Thus, many communes were so “full of love” that they burst, often in a spectacular fashion, leaving many bitter ex-members. In contrast, the groups that were the most durable tended to be those that minimized jealousy and emotional entanglements... In regulating or prohibiting sex, of course, these modern communes followed the pattern of successful religious communes throughout history (Stark, 2007:106).

Radicalization and Violence

Cass Sunstein (2002, 2003, 2009) argues that when like-minded people deliberate as an organized group, the general opinion shifts toward extreme versions of their common belief. His “law of group polarization” is similar to the echo-chamber effect, except that rather than simply arguing that ideas and beliefs become amplified when a group meets regularly with little exposure to competing views, it contends that the beliefs of a group will gravitate to the views held by its most extreme or radical members. That is why “in a product-liability trial, if nine jurors believe the manufacturer is somewhat guilty and three believe it is

entirely guilty, the latter will draw the former toward a larger award than the nine would allow on their own. Or, if people who object in varying degrees to the war in Iraq convene to debate methods of protest, all will emerge from the discussion more resolved against the war” (Bauerlein, 2004:B8).¹⁴

Reframed in terms of social networks, Sunstein’s law implies that denser and more isolated groups are more likely to become radicalized than are those that are sparse and remain connected to the wider society (Everton, Forthcoming). And while most religious groups do not engage in violent behavior, some do, and it follows from Sunstein’s theory that isolated and dense religious groups are more likely to commit acts of violence. Anecdotal evidence suggests this is indeed true. Jim Jones’s Peoples Temple (1987), the Armed Islamic Group of Algeria (Hafez, 2003, 2004), and the Branch Davidians (Hall, 1995; Tabor and Gallagher, 1995; Wright, 1995) all became increasingly isolated, which appears to have contributed to their turn toward violence. This also appears to have been the case of the Hamburg cell, which played a key role in the 9/11 attacks on the World Trade Towers and the Pentagon. According to Sageman (2004), the cell was composed of students who, while living away from friends and family, met at familiar settings, such as mosques. They eventually moved into apartments together and underwent extended periods of isolation and intense social interaction, which led them to adopt the beliefs of the group’s most extreme members.

Figure 2 depicts the Hamburg Cell from 1996 to 2001 where the width of the tie between two actors reflects the strength of the tie between them.¹⁵ As the figure suggests, the cell’s level of network closure, as evidenced by its interconnectedness, appears to increase from 1996 to 1998, remain relatively stable through 1999, and then begin to decline in 2000. This pattern is confirmed by the various social network measures of network interconnectedness presented in Table 6.¹⁶ Moreover, additional analysis using stochastic actor-oriented models (SAOMs) found strong empirical evidence that the Hamburg Cell became increasingly interconnected over time (Everton, Forthcoming). The group’s increasing interconnectedness through 1999 is consistent with what we have learned about the group in the years since the attacks (9/11 Commission, 2004; Sageman, 2004), as is the decline that began in 2000 after the group returned from training in Afghanistan and took deliberate steps to conceal their radicalism.

¹⁴ Sunstein concedes that the term, group polarization, is potentially misleading. It does not intend to suggest that group members move to opposite poles on an issue, but rather that they collectively shift to a more polarizing view. “The effect of deliberation is both to decrease variance among group members, as individual differences diminish, and also to produce convergence on a relatively more extreme point among pre-deliberation judgments” (Sunstein, 2002:178).

¹⁵ The data, which are anonymized, were collected and stored by the John Jay & ARTIS Transnational Terrorism Database (JJATT) project (Scott Atran, principal investigator), which has collected social network and attribute data on over 2,000 individuals. The Hamburg cell data are longitudinal with yearly data points of 34 individuals indirectly and directly associated with the cell in the years prior to and leading up to the 9/11 bombings. Tie strength ranges from 0 to 3, where 0 indicates the absence of a tie, 1, acquaintances and distant family ties, 2, friends and moderately close family ties, and 3, close friends and family. Although there are some limitations to the data (see Gerdes, 2015), which is not unusual with data on covert and illegal networks (Borgatti et al., 2006; Krebs, 2002; Roberts and Everton, 2011; Sparrow, 1991), they appear to reflect other accounts of the cell (9/11 Commission, 2004; Sageman, 2004). The figures were created in R using the *igraph* library (Csárdi and Nepusz, 2006).

¹⁶ All measures were calculated using UCINET (Borgatti et al., 2002). The cohesion measure used here equals the proportion of all pairs of actors that can either directly or indirectly reach one another— see Krackhardt (1994)—while the global clustering coefficient is the measure popularized by Watts and Strogatz (1998).

Figure 2: Hamburg Cell, 1996-2001

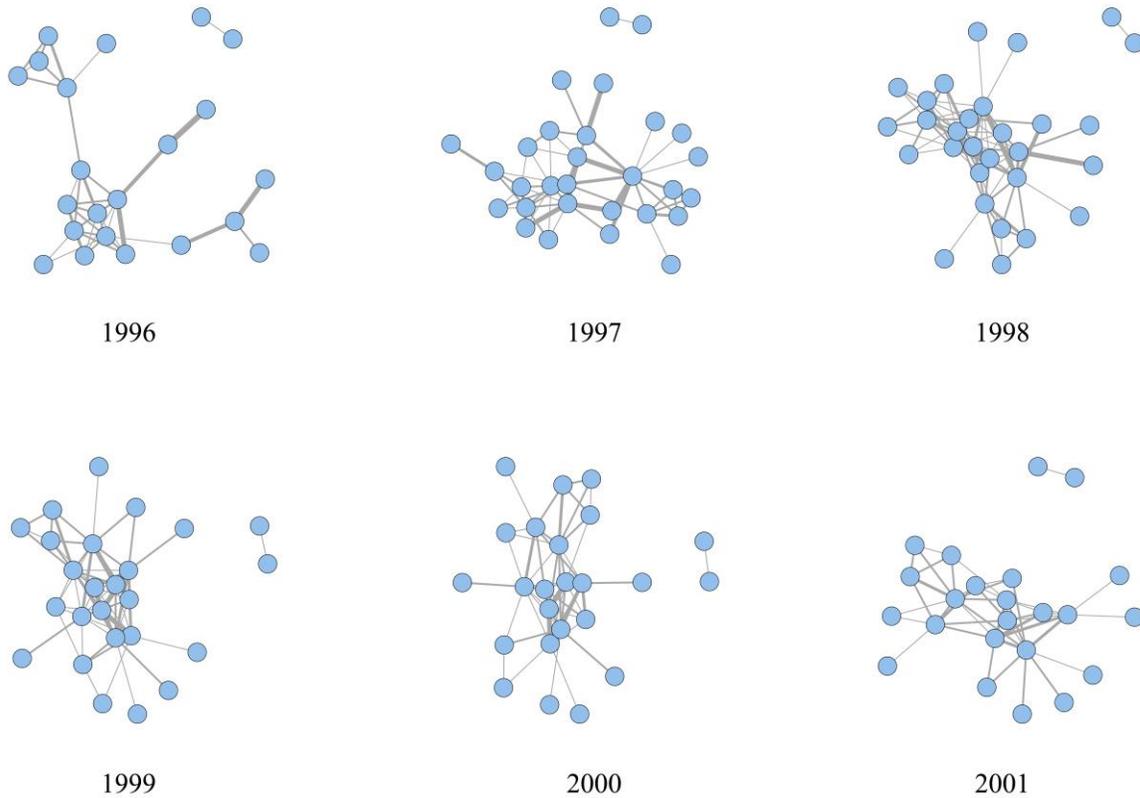
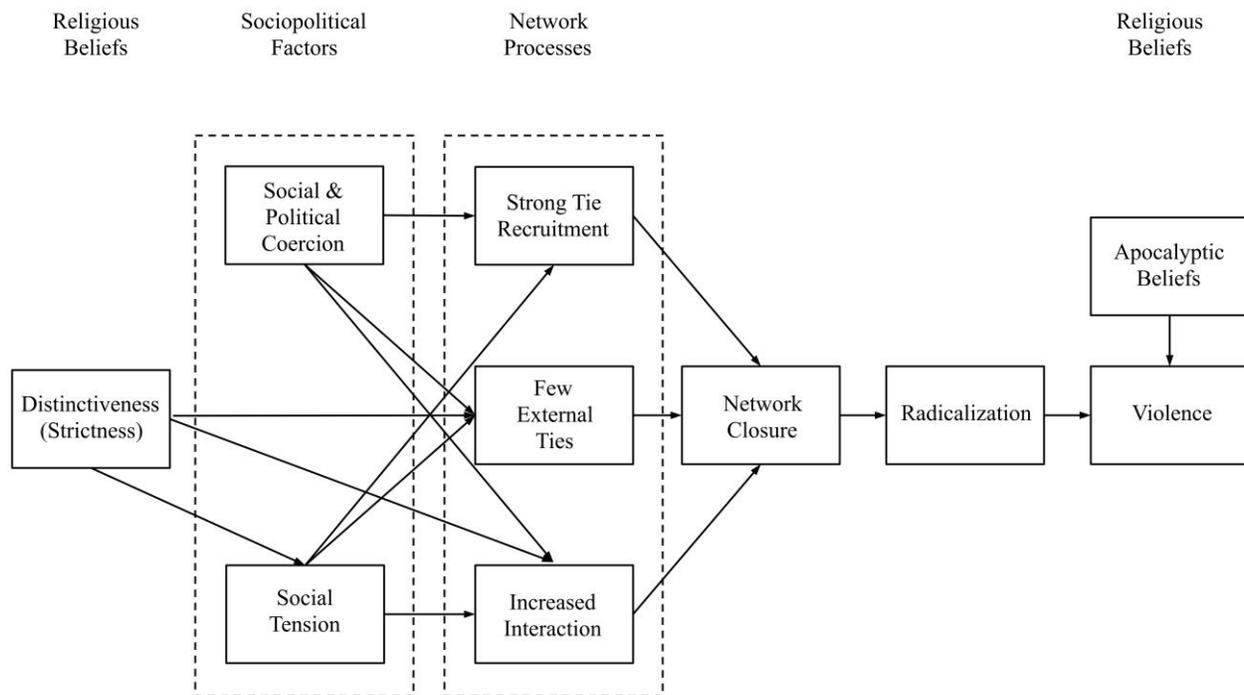


Table 6: Select Measures of the Interconnectedness of the Hamburg Cell, 1996-2001 (adapted from Everton, Forthcoming)

	1996	1997	1998	1999	2000	2001
Density	0.18	0.15	0.20	0.22	0.20	0.18
Average Degree	3.73	4.28	5.52	5.28	4.58	3.91
Cohesion (Connectedness)	0.83	0.87	0.87	0.85	0.84	0.84
Global Clustering Coefficient	1.27	1.04	1.24	1.34	1.08	1.20

Source: John Jay & ARTIS Transnational Terrorism Database

Figure 3: Religious Beliefs, Social Networks, and Group Radicalization (adapted from Everton, Forthcoming)



To be sure, the argument presented so far could apply to any group, religious or otherwise. Figure 3 (adapted from Everton, Forthcoming) captures the role that religion can play in the radicalization process, in particular, how certain types of beliefs either indirectly or directly affect the degree of network closure or feed extremist beliefs about the surrounding world.¹⁷ Research has found, for instance, that “social groups know who they are in large measure by knowing who is in and who is not. Ingroups establish what it means to be ‘in’ primarily by contrasting with outgroups whose members are ‘out’” (Smith et al., 1998:91). Commonly referred to as boundary formation (Tilly and Tarrow, 2007), this process can increase the tension between groups and the environment in which they are embedded (Alimi et al., 2012:13; Stark and Bainbridge, 1985). And religious groups, especially those that adhere to theologically distinct beliefs, can excel at drawing boundaries between who’s in and who’s out (Smith et al., 1998; Stark and Bainbridge, 1985). As noted earlier, such groups also place considerable demands on their adherents in terms of finances, time, restricting what they can wear, where they can go, whom they can marry and befriend, and what secular pleasures they can enjoy (Iannaccone, 1994). These demands tend to limit group ties with outsiders, not only because members are encouraged to only socialize with one another, but also because they limit the time they have to form and maintain ties with non-members (Iannaccone, 1994).

¹⁷ The model outlined in Figure 3 includes an additional factor not discussed at length here: in particular, it delineates how social and political coercion can increase the degree to which groups limit external ties and the level of interaction among group members. Social and political coercion can also increase the level that groups recruit through strong ties, which also contributes to the level of network closure (Granovetter, 1973; Holland and Leinhardt, 1976; Rapoport, 1953a, b; Rapoport and Horvath, 1961). For a detailed discussion see Everton (Forthcoming).

Finally, it is far more likely for group radicalization to turn violent if groups believe that violence is divinely sanctioned. This often occurs in tandem with apocalyptic beliefs that hold that the final confrontation between good and evil, and that the end of the world is just around the corner. Religious groups often resort to violence when they believe they are in the midst of a cosmic war between good and evil in which they are expected to establish order by destroying disorder (Juergensmeyer, 2001). Indeed, it is not uncommon for apocalyptic groups to embrace the belief that destruction can hasten the arrival of a new divine age. Such beliefs feed what Hafez (2003, 2004) calls anti-system frames, which see state and society as beyond redemption and thus in need of annihilation. As Figure 3 indicates, apocalyptic beliefs play an independent role in the model. They increase the likelihood that radicalization will devolve into violence. To be clear, none of this is to argue that all religious groups that become dense and isolated will become radicalized or that sparse and integrated groups never will, but rather that dense and isolated religious groups are simply more like to become radicalized than those that are not.

Networks and Religion: Looking Forward

This paper has reviewed the key role that most social scientists believe that social ties play in the life of people of faith and their institutions. Available evidence suggests that they are the primary vehicles through which people join faith communities, and they largely determine who stays, who leaves, who associates with whom, and how often they participate. Research to date also indicates that networks are crucial for the diffusion of religious ideas and practices, as well as motivating individuals to volunteer and become civically engaged. Faith community networks also vary in terms of their composition, reflecting not only their tension with the surrounding society but also their socioeconomic class. Social networks also appear to play a key role in the health and subjective well-being of people of faith, but as we saw they can also contribute to conflict, radicalization, and (sometimes) violence.

Table 7 summarizes the 36 studies discussed in this article. What is striking is that only 10 of the studies used what are typically called whole, complete, or full social network data, that is, data for which most social network algorithms are designed.¹⁸ Most of the rest drew on methods for inferring ties that are generally poor proxies for measuring social network effects, such as surveys that ask questions such as, “How often do you see, write, or talk on the telephone with your friends?”, “How many close friends do you have in this congregation?”, “My congregation feels/felt like family to me.”, “To what extent did you talk to people in your religious congregation?” and so on.

Some of the studies drew on ego-network data, and these generally represent something of an improvement.¹⁹ For example, the National Study of Youth and Religion (NSYR), which focused on religious development and other socio-behavioral issues among emerging adults, included a network module gathering some detailed ego network data about each respondent’s close friends (Denton and Smith, 2003)” (adams, 2011:329). However, as social network analysts well know ego-network data are limited because the only properties that can be studied are the size (number of ego’s connections), the

¹⁸ As many readers undoubtedly are aware, whole network data differ from other types of network data in that, at least in theory, they not only include all relevant actors but also all relevant ties between actors.

¹⁹ For readers unfamiliar with ego-network data every person surveyed is generally asked for a set of contacts (Burt 1984, 1985), using questions such as “Looking back over the last six months, who are the people with whom you discussed matters important to you?” After providing a list, they are asked about the ties between their contacts (e.g., do they know one another, attend the same church, are they friends, and so on), as well their contacts’ various attributes (e.g., gender, race, education level, etc.).

Table 7: Summary of Studies Reviewed

Authors	Date	Type of Data Used			Comments
		Whole Network Data	Ego Network Data	Other	
Adameczyk and Felson	2006		X		Survey with ego network generator
adams and Trinitapoli	2008		X		Survey with ego network generator
Bearman and Brückner	2001	X			Add-Health social network data
Becker and Dhingra	2001			X	Survey
Beyerlein and Sikkink	2008			X	Survey
Brashears	2010		X		Survey with ego network generator
Chaves	1996	X			Denominational network data
Cheadle and Schwadel	2012	X			Add-Health social network data
Collar	2013	X			Archeological network data
Smith (and Denton)	2005		X		Survey with ego network generator; interviews
Ellison and George	1994			X	Survey
Ellison and Sherkat	1995			X	Survey
Emerson and Smith	2000			X	Case study
Everton	Forthcoming	X			John Jay & ARTIS Terrorism Database
Kim and Pfaff	2012			X	Inferred social ties (counts)
Kox, Meeus, and Hart	1991			X	Meta-analysis of previous studies
Levy-Storms and Wallace	2007	X			
Lewis, MacGregor, and Putnam	2013			X	Survey
Lilly Survey of Attitudes and Social Networks (Emerson)	2009-10			X	Survey
Lewis, MacGregor, and Putnam	2013			X	Survey
Lim and MacGregor	2012			X	Survey
Lim and Putnam	2010			X	Survey
Lindsay	2006, 2007, 2008			X	Partial network data
Lofland and Stark	1965			X	Counts of ties
Matthews, Edmonds, Wildman, and Nunn	2013	X			Anabaptist leadership network
Pescosolido and Georgianna	1989			X	Socio-demographic data; network density inferred
Popielarz and McPherson	1995			X	Survey
Sageman	2004	X			Network data collected from various sources
Sampson	1968	X			Observation
San Francisco Survey of Mormons (Mauss)	1967-69			X	Survey
Smilde	2005			X	Observation
Snow, Zurcher, and Ekland-Olson	1980			X	Counts of ties
Stark and Bainbridge	1980			X	Inferred Social Ties
Stark and Bainbridge	1985			X	Survey
Stark and Wang	2015			X	Survey
Vala and O'Brien	2007			X	Observation, interviews
Zablocki	1980	X			Interviews, surveys

density (the extent to which ego's contacts are tied to one another), the strength of ties connecting ego to his/her connections, and the brokerage potential between ego and his/her connections (Prell, 2011). To be sure, ego-network data collected as a part of a survey are attractive because their results can be generalized to the wider population; however, the network data they collect are seldom, if ever, as robust as whole network data are in tapping into the nuances of network effects. Moreover, as several recent studies have documented (Eagle and Proeschold-Bell, 2015; Fischer, 2009; Paik and Sanchagrin, 2013), ego-network data can be particularly sensitive, and usually in negative ways, to interviewer effects. Of the studies listed in Table 7 that did not use whole network data, Lindsay's (2006, 2007, 2008) analysis of evangelical elites is something of an exception. Lindsay recorded and analyzed "partial network data," which are data collected following standard ego-network methods but augmented with information about the contacts' ties (adams, 2011:325). "While he initially used his partial knowledge of the network structure as a strategy to gain access to a hard-to-reach population, Lindsay also carefully detailed his in-depth strategy of personal referrals... This subsequently allowed him to analyze some characteristics of the pattern of relationships among this population" (adams, 2011:329). Nevertheless, partial network data are not as robust as whole network data. As Lindsay (2007:65) himself notes, his network data contain significant gaps, which is why he did not employ formal network analysis.

All this suggests that far more work can be done in terms of exploring the dynamic nature of networks and religion. An obvious question is whether social network analysts can learn anything new from studying religious networks that they cannot learn from studying networks located in other contexts, such as health, education, business, and so on, which social network analysts already study. This is something of a chicken or egg question, however. We cannot really know if there is something unique about religious network processes unless we actually study them. Some initial progress has been made in this regard. For example, Cheadle and Schwadel (2012) used the stochastic actor-based models developed by Snijders (1996, 2005) and his colleagues (Snijders et al., 2010; Steglich et al., 2010) in order to disentangle the effects of socialization and social selection on several religious outcomes and found that both had an impact although the former tended to exhibit larger effects than the latter. This led them to conclude that "that a broader conception of interpersonal social process and religion may be warranted. That is, there is a 'jointness' in the friendship selection and socialization processes leading to social congruence" (Cheadle and Schwadel, 2012:1209). Still, there is a lot left to explore. For example, while Cheadle and Schwadel's study has potential implications for our understanding of conversion, their analysis was "limited to adolescents in small schools" (Cheadle and Schwadel, 2012:1210), suggesting the need for similar studies be conducted with different populations embedded in different settings. More complete social network data could also enable analysts to determine how and whether an actor's location within a faith community impacts the likelihood they volunteer or become civically involved. Are more centrally located individuals more likely than those on the periphery? Or consider Becker and Dhingra's (2001:329) contention that social networks rather than beliefs are the primary mechanism that lead people of faith to volunteer. They based this conclusion on a survey question which asked respondents how many of the good friends had they met through church (Becker and Dhingra, 2001:323). Such a conclusion is unwarranted given that the network "data" on which they base it can hardly be considered "robust." Analysts could ask similar questions with regards to networks and health. Whole network data could help us determine whether and how network topography affects the stability of faith communities. Are congregations that are very dense or very sparse, very hierarchical or very heterarchical more likely to fail than those that strike a balance between the two extremes? Research in other areas suggests that may very well be the case (Stark, 1996b; Uzzi, 1996; Uzzi and Spiro, 2005). In short, there is a research void just waiting to be filled, and there is no reason to believe that religious network data are more difficult to collect. In fact, faith communities, with their relatively well-defined boundaries, may prove to be more

ideal sites for the analysis of networks than other currently “popular” sites such as dark (i.e., covert and illegal) and social media (e.g., Facebook, Twitter) networks.²⁰

On a final note, there is at least one other reason why social network analysts should train their analytical skills on religion. For good or for ill, religious beliefs and practices have had and continue to affect the day-to-day lives of people around the world. Religion affects the strategies adopted by social movements (Davis and Robinson, 2012), it impacts immigration patterns (Kurien, 2014), it informs policy debates (Martin, 1996; Smith, 1996), it plays a central role in reconciliation efforts (Toft et al., 2011), and, unfortunately, it inspires some to commit unspeakable acts of horror (Juergensmeyer, 2001; Stern, 2003). And since religion shows no sign of abating (Berger, 1996; Micklethwait and Wooldridge, 2009; Stark, 1999; Toft et al., 2011), it seems incumbent that those capable of studying the effects of social networks on religion (and vice versa) should do so. In fact, it may be irresponsible not to.

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²⁰ Moreover, they might provide a welcome change from studies of political, organizational, corporate interlock, and adolescent friendship networks.

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