

## Network Dynamics in Saga and Society

### Strategic Alliances: The “Strength of Weak Ties”

When wise old Njáll Þorgeirsson learns of the death of Þráinn Sigfússon (killed in spectacular style by his son Skarphéðinn) he foresees disaster awaiting his family, unless something can be done to break the pattern of violence. He arranges a quick settlement with Þráinn's brothers; but similar agreements had already proved fragile, and members of Þráinn's extended family were sure to nurture grudges. Njáll therefore embarks on a bold strategy intended to disrupt and confound prevailing family loyalties. First he arranges to foster the dead man's son, Höskuldr, who also has ties through his infamous grandmother Hallgerðr to a powerful family from Laxárdalur in the West. And next, when the boy grows up, Njáll marries him to the niece of a powerful chieftain from the East, Flosi Þórðarson Freysgoða, who himself was married to the daughter of another patriarch and power-broker, Síðu-Hallr. Finally Njáll zealously pursues a key condition for this marriage: the creation of a new goðorð for young Höskuldr, who would thus acquire his own constituency of farmers and other allies.<sup>1</sup>

Readers of *Njál's saga* know well the tragic events set in motion by these stratagems, so we need not follow the plot all the way to the death of Njáll and his family, caused by an alliance of burners led by Flosi. The entire saga holds its breath for these preventive measures, crafted by one of Iceland's great legal minds, and calculated to defeat the strong ties of kinship that would perpetuate the cycle of violence. Höskuldr becomes a willing actor in Njál's plan to enrich the network of loyalties and support. Members of the wider Sigfúss clan know that any move against the Njálssons will breach the peculiar loyalties of the foster relationship, and through that breach could invite enmity from powerful families linked by marriage to young Höskuldr. These same powerful families will deter the aggressive tendencies of Njál's own sons toward the Sigfúss family, should the Njálssons face further provocation. All these machinations are well known to readers and commentators. I use them here to introduce the theme of this paper: the use of strategic alliances to expand networks of power and support.

Such alliance-building receives minute attention in virtually all the sagas, where its role in plot development is familiar enough to any reader. But one may also find historical and social meaning in these elaborate network systems – notwithstanding the whole book prose/free prose controversy.<sup>2</sup> The varied alliance patterns described in both the Family Sagas and the Contemporary Sagas suggest certain topological features that may shed light on political development and social change throughout the period of the Icelandic Commonwealth. Njál's actions with respect to Höskuldr point to the fluidity of loyalties, showing us how kinship spheres can be expanded and transformed. Blood relationships create strong obligations of support, but kinship ties are also dynamic and permeable. They can be stretched and recalibrated by competing loyalties built up through marriage, fostering, friendship, and looser pledges of political and social support.

Compared to static kinship structures these incremental modes of relation may seem weak in themselves. But they represent critical links between discrete nodes in an expanding network. In terms of network theory these “weak” links serve as bridges between otherwise disparate centers of power. The impact is clear in the case of marriage, often portrayed in the

<sup>1</sup> *Brennu-Njáls saga*, ed. Einar Ólafur Sveinsson, *Íslensk fornrit XII* (Reykjavík: Hið íslenska fornritfélag, 1954), chapters 93-97.

<sup>2</sup> On the use of sagas as historical tools I follow the approach taken by Jón Viðar Sigurðsson, *Chieftains and Power in the Icelandic Commonwealth* (Odense: Odense University Press, 1999), chapter 1.

sagas as a strategic relationship resulting in new power balances and support systems. Because of a single connecting link the loyalty systems of both families are augmented: through in-law relationships a looser but more potent network becomes possible. In the same way, relationships of fostering, friendship, and political allegiance generate more complex webs of loyalties and support. Both the Family Sagas and the Contemporary Sagas lavish close attention on these ways of expanding networks of power.

If the sagas thus manage to plot the basic formulas for social change in the society that produced and consumed them, their standing as guides to historical interpretation will be enhanced. Their value may reside not so much in presenting raw data as in modeling the key forces of historical development. Surprisingly, this medieval perspective on social dynamics may also contribute something new to the twenty-first century study of general network systems – an emerging field in the age of the “information society.”<sup>3</sup> For the past several decades sociologists and organizational theorists have invoked network models to help explain broader social dynamics – everything from the global expansion of financial markets to the diffusion of gossip in closed communities.<sup>4</sup> More intensive study of “complex systems” has yielded new discoveries about the formal features of all network structures – regardless of time or place.<sup>5</sup>

One important principle in recent network research is known as “the strength of weak ties,”<sup>6</sup> a seeming paradox that fits comfortably with the power-building strategies of *Njáls saga*. According to this principle the best way for people to expand their personal support network is by turning to distant acquaintances, and not to everyday friends. Our closest friends (and especially our immediate families) already share many of their contacts with us. Instead we need to call on less intimate associates, people who can serve as bridges to entirely new opportunities and resources. Hence the significance of “weak ties” for the expansion of support systems. For these purposes a “weak” tie is defined as an acquaintance whose circle of contacts overlaps only slightly with one’s own.<sup>7</sup> It seems to me this striking principle was anticipated more than 700 years ago by saga writers, in their portrayals of power alliances in the Icelandic Commonwealth.

It was a theory understood perfectly well by Njáll in his desperate efforts to develop new alliances of support, focusing on the pivotal figure of Höskuldr Hvítaness goði. When (despite these efforts) the Njálssons end up killing Höskuldr, the strategy backfires, as the revenge of distant but powerful partners leads to the tragic burning at Bergþórshvöll. After that event, the saga turns its attention to Flosi’s fevered attempts to forge his own network through “weak” ties to strong chieftains, whose help he needs for his legal defense at the Alþing. (The ties are “weak” in the sense that Flosi approaches power brokers with whom he has had little previous connection; each one can potentially add great “strength” to Flosi’s case.) Based on a dream, Flosi concludes that his own immediate circle, those burners who were his closest comrades, were doomed men and in no position to mount a legal defense.

<sup>3</sup> For a sociological perspective on the “information society” see Manuel Castells, *The Rise of the Network Society*, revised edition (Oxford: Blackwell, 2000).

<sup>4</sup> For an introductory overview see Stanley Wasserman and Katherine Faust, *Social Network Analysis* (New York: Cambridge University Press, 1994). For practical techniques of application see John Scott, *Social Network Analysis*, second edition (London: Sage, 2000). One of the earliest applications of social network theory was made in a small Norwegian coastal village, J.A. Barnes, “Class and Community in a Norwegian Island Parish,” *Human Relations*, Vol. 7 (1954).

<sup>5</sup> A popular summary of formal network structures is Albert-László Barabási, *Linked: The New Science of Networks* (Cambridge, MA: Perseus, 2002).

<sup>6</sup> Mark S. Granovetter, “The Strength of Weak Ties,” *American Journal of Sociology*, Vol. 78 (1973), pp. 1360-80. This may be the most frequently cited article in the entire literature of network theory.

<sup>7</sup> *Ibid.* p. 1363.

And so says his only vital strong tie, his father-in-law Síðu-Hallr.<sup>8</sup> Flosi's appeal is plain as he puts it to a potential ally, Hallbjörn inn sterki of Breiðdalr in the North: "...en þat vilda ek, at þú riðir til þings með mér ok veittir at málum mínum. En þó á ek hvárki at telja til við þik mægðir né frændsemi." At times Flosi is reduced to offering money in exchange for support, but his bare need is sufficient reason for another potential ally, Bjarni Brodd-Helgason at Hof in Vápnafjörðr, to accept his plea: "Aldri hefi ek selt karlmennsku mína við fémútu né svá liðveizlu. En nú er þú þarft liðs, mun ek gera þér um vinveitt ok riða til þings ok veita þér sem ek mundi bróður mínum."<sup>9</sup> Indeed, when the legal battle takes form at the Alþing both sides have already done prodigious networking, as their roughly balanced legal forces fight to a standoff, giving way to pitched battles before calmer figures prevail.<sup>10</sup>

### Genealogies as Dynamic Networks

Network theories are especially useful for studying the dynamic features of societies undergoing significant changes.<sup>11</sup> In general terms networks define an open field of activity where individual actors supply the impetus for change, but are soon swept up in broader collective forces. Coalitions and alliances meet the strategic needs of assertive players in this social system, but the structural logic of networks governs how these alliances promote large-scale change. Network functions translate micro-motives into macro-trends.<sup>12</sup>

The distinctive narrative qualities of sagas lend themselves to network interpretations. The narrative action is centered on individual characters whose behavior disturbs the hazy social equilibrium with which each saga begins – that "once upon a time" aspect of literary beginnings. Once launched into this narrative field, protagonists meet with powerful constraints signaled variously by determined adversaries, by customs embodied in law or public opinion, and by the vagaries of fate – through all of which individual actions may acquire new social meanings never intended by the actors themselves. When characters start building alliances there are no guarantees of success. Network analysis may help today's readers close the gap between these strategic actions and their social and political consequences.

The standard genealogical passages of sagas often foreshadow expanding alliances – the core elements of broader social development. A genealogy locates an individual within a particular family structure, which can be diagrammed as a static record of determinate relationships. But genealogies may also do more than this: in many instances they project more dynamic features, frozen in a cross-section of time, whose strategic dimensions are then closely worked out in the saga narrative. A saga may also introduce competing social networks as distinct genealogical tableaux, which come alive and intersect in significant ways. Over the years saga scholars have heard plenty from structural anthropologists about

<sup>8</sup> *Brennu-Njáls saga*, chapter 134.

<sup>9</sup> *Ibid.* From the Robert Cook translation: "...but I'd like you to ride to the Thing with me and support me in my affairs there, even though I have no claim on you either by marriage or by blood." "Never have I taken any bribe for my manhood or my support. But since you need help, I will act out of friendship and ride to the Thing and help you as I would my own brother."

<sup>10</sup> An interesting example of "weak ties" occurs in *Heiðarviga saga*, as Barði Guðmundarson seeks support for an overdue mission to avenge his brother Hallr. On the advice of his foster father, Barði recruits, among others, a group of six local farmers, none with any special ties to Barði, but all with strong ties to each other. *Íslensk fornrit III*, ed. Sigurður Nordal and Guðni Jónsson (Reykjavík: Hið íslenska fornritfélag, 1938), chapter 16.

<sup>11</sup> A classic application of network analysis to changing social conditions is J. Clyde Mitchell, ed. *Social Networks in Urban Situations: Analyses of Personal Relationships in Central African Towns* (Manchester: Manchester University Press, 1969).

<sup>12</sup> See Granovetter, p. 1360.

ties of kinship and their cultural role in the Icelandic Commonwealth.<sup>13</sup> But there is more to be learned from studying the patterns by which kinship relations expand and compete with other social ties. New links occasioned by marriage, fostering, or other forms of alliance draw otherwise distant families into a complex web of social forces.<sup>14</sup> Where two or more dominant network systems become entangled through a single case of intermarriage, the stage is set for familiar power struggles that pervade the saga literature. Far from remaining closed systems of kin relationships, families are drawn into the open-network dynamics of larger social fields, prompted by key individuals who serve as brokers or connectors between disparate family systems.

In the saga of Hvamm-Sturla, which supplies a prologue for later events described in other *samtíðarsögur* in the *Sturlunga* compilation, we find such tableaux of family networks in the opening passages. The very first section focuses on Þorgils Oddason, “höfðingi mikill” and worthy of attention as the reference point for an extended relational network. The recitation of forebears is unusually brief here, although there is another saga about Þorgils that describes his ancestry in great detail.<sup>15</sup> Here the emphasis is on the future, as the genealogy projects a dynamic, open-ended system emanating from Þorgils but centering on his nine children, each of whom serves as a link to other families whose allegiance and support will prove relevant to the action described in the saga. The two sons of Þorgils, Oddi and Einarr, supply further links to distant families through the fostering relationship: Oddi with a key link to the powerful Oddaverjar family of Sæmundr Sigfússon; Einarr with a link to the more humble Þorgeir Sveinsson of Brunná.<sup>16</sup>

In addition to the Þorgils network the saga introduces a second complex family system revolving around Þórr Gilsson and his son Sturla (Hvamm-Sturla), mentioning the family’s descent from the saga hero Snorri goði.<sup>17</sup> Hvamm-Sturla’s own family network will become intricately complex, as later sagas explain, involving children with five different women. (His descendants will animate the long narrative of *Íslendinga saga*, written by his grandson.) The events of this smaller saga turn ultimately on a “weak tie” between the two networks: Sturla’s marriage to Ingibjörg, whose grandfather was an uncle of Þorgils Oddason. Sturla thus represents a bridge between these separate kinship clusters, and the question is how this link will change the prior balance of strength. In the short space of some fifty pages that question is pursued through the standard saga devices of incitements, misunderstandings, sexual predation, contumely, arrogance, and stubbornness.

The saga focuses on the struggle for dominance between the two competing figures, Hvamm-Sturla and Einarr Þorgilsson, each of whom tries to keep the resources of his own network from slipping under the power of the other. Einarr calls on the extended network provided by his siblings and their connections by marriage, as well as on those families by which he and his brother were fostered. Sturla exploits his remote kinship connections to

<sup>13</sup> See, for example, George W. Rich, “Problems and Prospects in the Study of Icelandic Kinship,” in E. Paul Durrenberger and Gísli Pálsson, eds., *The Anthropology of Iceland* (Iowa City: Iowa University Press, 1989), pp. 53-79. A more general treatment appears in Kirsten Hastrup, *Culture and History in Medieval Iceland* (Oxford: Clarendon Press, 1985). A far more interesting approach for my purposes, though controversial, is Bertha S. Philpotts, *Kindred and Clan in the Middle Ages and After* (Cambridge: Cambridge University Press, 1913). Guðrún Nordal’s comprehensive study focuses more on static kinship connections (*Ethics and Action in Thirteenth-Century Iceland* [Odense: Odense University Press, 1998], chapter 2).

<sup>14</sup> A fine analysis of these relations can be found in Jón Viðar Sigurðsson, *Chieftains and Power*, chapter 3.

<sup>15</sup> *Þorgils saga ok Hafliða*, part of *Sturlunga saga*.

<sup>16</sup> *Sturlunga saga: Sturlu saga*, chapter 1 {1988:44}. [Citations to *Sturlunga saga* refer to specific sagas and chapters according to the version edited by Jón Jóhannesson, Magnús Finnboegason, and Kristján Eldjárn (Reykjavík: Sturlunguútgáfan, 1946). I put in brackets the comparable chapter numbers in the 1988 edition edited by Órnólfur Thorsson (Reykjavík: Svart á hvítu).]

<sup>17</sup> *Ibid.*, chapter 2 {1988:45}.

Einar's clan to blunt the forces of opposition, thus co-opting parts of this permeable network. His provocative move to the farm at Hvammr provides a strategic base of operations, setting up the eventual armed confrontation with Einar.<sup>18</sup> Both antagonists represent "hubs" within a shifting nexus of relations, the contours of which are reshaped continuously as the saga unfolds. Within this flow their own direct relationship includes cycles of cooperation and conflict. Each one carries out the classic functions of "brokerage" relationships studied by social network theory: coordinator, itinerant broker, gatekeeper, representative, and liaison.<sup>19</sup> This whole competition is put into a larger strategic context as Sturla becomes too aggressive and has to be brought into line by a more eminent figure, Jón Loftsson. (It is during this encounter, however, that Jón offers to foster one of Sturla's sons, leading to the critical link between Snorri and the Oddaverjar.) When it comes time to freeze the action as the saga reaches its narrative conclusion, a new constellation of forces has been achieved. It is a preview of broader social and political dynamics that lie ahead in the *Sturlunga* compilation.

### Battle for Survival among Broader Coalitions

From the perspective of network analysis we approach the sagas to find key formulae that shaped political and social development in the Commonwealth period. For these purposes it is not necessary to validate saga events as raw historical data, nor to quantify information across sagas. Nor is it necessary to speculate on the degree of continuity between value systems portrayed in the retrospective settings of the Family Sagas compared to the immediacy of the Contemporary Sagas. It is as though the Family Sagas feature the micro-level formulae of network building, providing abundant examples of alliances that bridge the relatively closed circles of separate small-scale farms and ambitious families – alliances that dilute and supersede the core system of kinship obligations. In the Contemporary Sagas network formulae operate on a broader level, appearing as survival strategies used by competing coalitions of families striving to maintain non-kin support groups. The network dynamics of Contemporary Sagas belong to a manifold system of relations where established "hubs" compete for positional advantage in a crowded field. The number of power centers diminished as events in Iceland increasingly succumbed to external manipulation by Norwegian royalty.

Historians of the Commonwealth period in Iceland have documented the trends toward concentration of power amid conditions of chronic instability.<sup>20</sup> These turbulent conditions match the formal patterns of network models being studied today, including networks that map the spread of infectious diseases, the decline of ecosystems, not to mention the consolidation of the airline industry.<sup>21</sup> Looking back from our present century – in a shrinking world where social distance is being rapidly reduced below the classic "six degrees of separation," where dot.com entrepreneurs have given way to broader alliances battling over proprietary brands and technical standards – looking back from where we now stand, the power struggles of thirteenth-century Iceland represent a familiar story. Importantly, they give that story a more human face than one finds in articles on graph theory, neural networks, or software start-ups. And since network dynamics are essentially open-ended, with no pre-determined outcomes, the intricate plot lines of *Sturlunga saga* add an empathic dimension to formal patterns played out on the battlefields of medieval Iceland.

<sup>18</sup> *Ibid.*, chapters 5-19 (1988:49-62). By purchasing the property at Hvammr Sturla develops a relationship with Bǫðvar Barkarson, Einar's son-in-law. Soon thereafter, in the course of various conflicts, several of Einar's *þingmenn* shift their allegiance to Sturla.

<sup>19</sup> On the types of brokerage relationships see Roger V. Gould and Robert M. Fernandez, "Structures of Mediation: A Formal Approach to Brokerage in Transaction Networks," *Sociological Methodology*, Vol. 19 (1989), pp. 91-94.

<sup>20</sup> See generally Jón Viðar Sigurðsson, *Chieftains and Power* and sources cited therein.

<sup>21</sup> See Barabási, *Linked*, chapters 5-8.

By the beginning of the thirteenth-century Iceland was politically connected through some half-dozen major switching points or “domains” based on regional dominance of a small number of leading families.<sup>22</sup> A self-generating system of authority was working itself out through the ambitions, bravery, jealousies, and strategic skill of individual leaders. While maintaining its focus on the leading actors in this drama, the *Sturlunga* compilation assigns those actors a series of structural challenges: to bridge several generations of leadership; to retain competitive advantage in kinship ties across domains; to administer efficiently the local affairs within each domain; to control the disparate value structure of church authorities; to curry favor in the distant arena of Norwegian royalty. Above all the challenge that haunts the scions of each domain is *the imperative to survive under conditions of uncertainty*. This is the quintessential network imperative, which dictates mixed strategies of aggression and cooperation.<sup>23</sup> Along with memorable characters and dramatic stories, *Sturlunga saga* presents a classic study of how human actors try to meet these formal constraints.

The rudiments of domain-building can be seen most clearly in the rise of Sighvatr and Snorri, both sons of Hvamm-Sturla. Some decades after other regional domains had been consolidated, Sighvatr pulls together the relatively discrete territories in West Iceland, commanding wealth and land derived from his forebears along with property gained by purchase, gifts, assignment from the church, and shrewd bargaining. He marries well in choosing Halldóra, sister of Kolbeinn Tumason – leader of the Ásbirningar, a regional rival.<sup>24</sup> Halldóra is indeed a bridge to other domains as well: her mother was the daughter of the Haukdælir leader (and law-speaker) Gizurr Hallsson, and she later marries (after the death of Tumi) a leader of the Svínfellingar domain. Sighvatr’s family already enjoyed support from the most important remaining domain group, the Oddaverjar (although soon his personal relations with this group would turn sour). Given these superior connections, Sighvatr’s meteoric rise seems inevitable, as he proceeds to consolidate political authority of multiple goðorð, and to extend his influence into the Northern districts.

His rise is matched, however, by that of his illustrious brother Snorri, who retains close ties to the Oddaverjar clan (including his marriage), thereby leading him to oppose Sighvatr in some disputes. Notwithstanding a slower start Snorri turns his legal gifts to his advantage, leverages his modest properties into vast holdings, engages in ambiguous negotiations with Jarl Skúli in Norway, marries his daughter to a leading Haukdælir figure and thereby gains access to great wealth. By 1224, according to *Íslendinga saga*, Snorri is the richest man in Iceland.<sup>25</sup> Sighvatr’s influence shrinks to the Northern districts while Snorri consolidates power in the West. So much for the lessons in how to build a domain – how to rise to the level of a substantial hub in the relatively closed network of Icelandic power brokers. We may assume that similar devices were pioneered in earlier decades by leaders of the other domains.

From network theory we know that conditions of growth and uncertainty in active systems increase both the level of network traffic and the trend toward consolidation.<sup>26</sup> Why was power consolidating during this period in Iceland, and to what extent was the process driven by dynamics intrinsic to network systems? The sagas present us with motivations of personal ambition and aggression, with which no abstract theory can quarrel. There is a

<sup>22</sup> Again, I follow Jón Víðar Sigurðsson, *Chieftains and Power*, in preference to Jesse L. Byock, *Medieval Iceland: Society, Sagas, and Power* (Berkeley: University of California Press, 1988).

<sup>23</sup> On this point generally see Walter W. Powell, “Neither Market nor Hierarchy: Network Forms of Organization,” in *Research in Organizational Behavior*, Vol. 12 (1990), pp. 295-336.

<sup>24</sup> The marriage occurs despite conflict at the Alþing between Sighvatr’s brother Þórðr and Kolbeinn. *Sturlunga saga: Íslendinga saga*: chapters 5-6 {1988:132-33}.

<sup>25</sup> *Ibid.*, chapters 10-11, 16, 34-35, 53 {1988:137, 156, 184-85, 202}.

<sup>26</sup> Barabási, *Linked*, chapter 5.

Hobbesian gloom suspended over the account of increasing strife in the *Sturlunga* compilation, although one might also stress the numerous episodes of mediation, peacemaking, and conspicuous moderation that are all hard to explain on Hobbesian grounds. Remarkably, without sovereign authority, without any kind of central coordination, the political order achieves periods of relative stability. Network systems are more resilient than isolated individuals or groups (but also, in extreme cases, more vulnerable).<sup>27</sup> Connections and cooperation serve to moderate risk, especially under conditions of social and cultural change. As the closed circle of family ties gradually dissolves with intermarriage, and as ties of mutual aid, legal support, and emergency assistance shift to new organizational units (larger farms, more complex local administrative units),<sup>28</sup> those persons who are *relatively* well connected offer the greatest protection against unknown risks. “Nodes always compete for connections because links represent survival in an interconnected world.”<sup>29</sup> Consolidation of power in thirteenth-century Iceland would have taken place even if the sons of Hvamm-Sturla had all died in infancy. The particular personal results were not predetermined, but the general trend was unavoidable.

Even before the competition grew especially fierce with the large-scale battle at Örlýgsstaðir in 1238 (which seemed to raise the stakes in future combat), the struggle for dominance claimed some victims. Not everyone can be *relatively* well connected; those who serve as brokers and hubs must be limited in proportion. Network theorists refer to the “80-20” rule, in which 80% of the traffic passes through 20% of the connection points.<sup>30</sup> It is a norm of only rough exactitude, but it explains a common pattern in many walks of life: 80% of all academic citations point to 20% of total authors; in faculty meetings 80% of all decisions are made in just 20% of the total meeting time.

Among strong contenders, the competition for joining the privileged 20% can be ferocious. *Íslendinga saga* tells of the ambitions and fall of the great chieftain in the West Fjords, Þorvaldr Snorrason Vatnsfróings, who married Snorri Sturluson’s daughter and had links to the Haukdælir. A weighty participant in lawsuits and the victor in local power struggles, Þorvaldr came to grief at the hands of Sighvat’s volatile son Sturla, who supported the local enemies of Þorvaldr in burning him to death in his home. Later Sturla would overpower and brutally slay the sons of Þorvaldr, having calculated properly that his uncle Snorri, who needed Sturla’s support in a pending lawsuit, will not retaliate.<sup>31</sup> The heirs of Þorvaldr see their territory usurped by Snorri and his son Órækja, and are taken out of the action for the remainder of the Commonwealth period. Thus are reduced the ranks of minor candidates for higher status. Their stories too occupy the darker shadows of *Sturlunga saga*.

Among the deepest anxieties of wielding power must have been the problem of strong-willed progeny. The coalitions are in continual flux: they expand with the flow of lawsuits, feuds, and marriages, but there will be no stable equilibrium. The next generation may prove rebellious, and schisms within a family domain can be ruinous. The coalitions of the thirteenth century seem less like state-sponsored corporations than a group of technology start-ups. Had there been any prospect for stabilizing domains over time, the competition might have leveled off with multiple, distributed power centers linked across geographic regions of Iceland. But the competition had to be even greater because of instability within the leadership structure. Under these conditions the competitors are driven beyond the “80-20” rule to reach for monopoly power. The final stage of competition covered by *Sturlunga saga*

<sup>27</sup> *Ibid.*, chapter 9.

<sup>28</sup> Jón Viðar Sigurðsson, *Chieftains and Power*, chapter 2.

<sup>29</sup> Barabási, *Linked*, p. 106.

<sup>30</sup> *Ibid.*, chapter 6. The principle was originally associated with Italian engineer and economist Vilfredo Pareto.

<sup>31</sup> *Sturlunga saga: Íslendinga saga*: chapter 67 {1988:213}.

thus moves beyond the dynamics of an exclusive Icelandic network and connects with the broader resources of the Norwegian crown. That story ends in 1262-64 with the demise of the Commonwealth.

### Assessing Network Effects in the Sagas

The network perspective emphasizes the distributed nature of authority in the society portrayed in the sagas. Competition within distributed networks follows certain rules that may clarify the social and political development of that society. These rules are different from those implied by models of “centralized” or even centralizing authority. The network model begins from the relatively closed, dispersed groupings of settlement families, then proceeds through alliance-building by exploiting “the strength of weak ties,” and finally moves to a struggle for dominance in a system where authority can be suddenly diverted into alternate channels. Beyond a certain scale of alliance-building, hubs or power centers necessarily emerge and grow exponentially, given their comparative advantage as brokers.<sup>32</sup> The presence of growth amid social and environmental uncertainty sets the pattern in motion: as the flow of activity increases throughout the further reaches of the system, the hubs take on increasing importance.

In a kind of “rich-get-richer” phenomenon, the dynamic model tends toward a balance of the “80-20” variety: the sort of distribution found in the early decades of the thirteenth-century, with about a half-dozen viable domains. There are certain networks, however, where multiple hubs cannot survive and must give way to a “winner-take-all” effect.<sup>33</sup> The collapse of the hub system is not inevitable, but results from formal conditions that are still being debated by network theorists. In the case of the collapsing domains in the Icelandic Commonwealth, that critical shift may have occurred for a number of reasons, including the problems of maintaining hub dominance across generations, and the external effects of a larger network system centered in Norway.

Throughout this pattern of development networks represent the importance of being connected – replacing the social model of rugged individualism. For self-evolving social networks, in the absence of any master planner, the driving humanistic force is *trust*.<sup>34</sup> Trust in oneself is good as far as it goes, but it is no substitute for trust in one’s chosen allies. No one can be self-sufficient; and no one has enough wisdom to see where history will end up, nor enough power to impose any grand design. This emphasis on trust is entirely consonant with the value system on display throughout the sagas, which grants highest priority to *honor* even at the cost of an individual’s own life. The fact that trust is constantly being tested in the sagas by personal ambition, by sheer evil, and even by bad luck only adds to its premier value for maintaining alliances. The formal extraction of oaths of allegiance and other such institutions of trust, as described in *Sturlunga saga*, further underscore the value placed on trust.<sup>35</sup>

The importance of trust is communicated also in the special qualities of saga narrative: the detached tone, never entirely overcome by even the most appealing actors; the conspicuous sense of balance, anchored somewhere beyond the personal interests of saga

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<sup>32</sup> Barabási, *Linked*, chapter 5.

<sup>33</sup> *Ibid.*, chapter 6.

<sup>34</sup> On this much discussed topic of trust see Ronald S. Burt, “Bandwidth and Echo: Trust, Information, and Gossip in Social Networks,” in James E. Rauch and Alessandra Casella, eds., *Networks and Markets* (New York: Russell Sage, 2001), pp. 30-74, and sources cited therein.

<sup>35</sup> In *Þórðar saga Kakala*, Sturla Þórðarson and eleven additional men from the West are forced to swear an oath of allegiance to Kolbeinn ungi (chapter 1 {1988:309}). On the matter of oaths and the institution of “trusted men” see Jón Viðar Sigurðsson, *Chieftains and Power*, pp. 76-79.

characters; the realization that survival properly belongs to the aggregate, not the heroic individual. The sagas provide no models of human perfection, although figures like Snorri goði, Síðu-Hallr, Jón Loftsson, and of course Njáll are conspicuously able to reciprocate trust. They are all rational actors, in one sense, but they embody the notion that self-interest presupposes trustworthy alliances. Network logic replaces the rational actor model as a principle of interpretation, and it strikes me as far more powerful for understanding the sagas.<sup>36</sup>

There is nothing original in pointing to alliance-building as a central theme in saga literature. It may not have received the scholarly attention devoted to feuding and dispute resolution, alongside other distinctive cultural practices of early Icelandic society. The structuralist analysis of feuding activity has yielded numerous studies,<sup>37</sup> and structuralist anthropology has found more-or-less coherent cultural norms implied by the sagas.<sup>38</sup> Alliance-building plays a supporting role in these scholarly projects, being treated as something rather obvious and self-explanatory. Yet it is not at all clear how these varied alliances were rewarded, let alone how they performed in the aggregate. Recent discoveries in network theory may offer a new slant, based on some universal characteristics of complex systems. Above all, network theory shifts the level of analysis from structure (whether literary or social structure) to evolution and change. For historians interested in political and social *development* in early Iceland, network logic builds bridges between the typical actions of saga characters and cumulative political changes in the underlying society.

Through networks a vast complex of personal motivations may be channeled into broader social streams. We do not need to know exactly what those motivations are, apart from examples and types, but network logic explains how social institutions could have evolved, without any explicit plan, from the common needs of early Icelanders. That development may be seen as the collective result of special conditions that shaped Icelandic settlement: (1) the spontaneous emergence of political relations in a stateless territory; (2) constant pressure to exploit scarce resources; (3) a highly dispersed or "in-bred" structure of social relations; (4) endemic uncertainty about the prospects of success and the stability of power. And consider, finally, the astonishing display of self-analysis that marks the genius of

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<sup>36</sup> Sverre Bagge has made a strong case for applying the rational actor model in the interpretation of *Heimskringla*. In my view the model faces severe limits in sagas no less than in other areas of application. Network theory is closer to the model of "bounded rationality," in looking beyond the rational actor to analyze the inevitable boundary conditions.

<sup>37</sup> See notably Jesse L. Byock, *Feud in the Icelandic Saga* (Berkeley: University of California Press, 1982).

<sup>38</sup> In addition to Kirsten Hastrup, cited above in note 13, some less focused views have been expressed by E. Paul Durrenberger, *The Dynamics of Medieval Iceland* (Iowa City: Iowa University Press, 1992) (which, despite its name, remains caught in a static methodology). For critical views on social science methods used in Durrenberger's work and that of William Ian Miller, *Bloodtaking and Peacemaking: Feud, Law, and Society in Saga Iceland* (Chicago: University of Chicago Press, 1990), see my review "Félagsvísindamanna saga," *Skírnis* Vol. 171 (1997), pp. 185-207.

saga-writing: with all of this the sagas themselves tell us much of what we need to know about a unique chapter in human history.