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Document Version
Final published version

Published in:
Economic Sociology

Publication date:
2018

License
Unspecified

Citation for published version (APA):
Henriksen, L. F., Grau Larsen, A., Ellersgaard, C., & Lunding, J. (2018). Networks of Corporate Ancestry: Dynasties of Patri-Lineages in Chairman-Executive Networks. *Economic Sociology*, 19(3), 11-18.
http://econsoc.mpifg.de/archive/econsoc-Newsletter_19-3.pdf

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Networks of Corporate Ancestry: Dynasties of Patri-Lineages in Chairman–Executive Networks

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Introduction

Sociologists and political scientists talk about patrimonialism, patrimonial states, or patrimonial capitalism in relation to a social system that is hierarchically ordered and in which power flows exclusively from a single node, or a few sets of nodes, namely the father(s) (Adams and Charrad 2011; Collins 1998; Piketty 2014; Weber 1978). In these systems, the family as an institution (biological or social) is the key means of securing political and economic stability across generations. For stability, an inheritance of wealth and power is passed on from father to son. Fathers must thus cultivate their offspring, so as to ensure the reproduction and further expansion of the family “estate.” Often scholars extend the logic across several generations to talk about grandfather, great-grandfather, or multi-generational lineages (Padgett 2010).

In this paper, we extend patrimonial rule as a metaphor with which to study longitudinal corporate networks, suggesting a focus on parent–children links in executive appointments.¹ How are corporate alleles passed on? We follow Collins’ (1998) focus on the tutor–student relationship to trace the inter-generational evolution of intellectual movements, and extend his thinking to an economic sociology context (see

also Henriksen, Seabrooke and Young 2017; Godechot and Louvet 2008). By doing so we move beyond a narrow model of power and wealth inheritance via biological family ties to think about lineages of corporate families in terms of how corporate control is passed on inter-generationally. The focus of our corporate-genealogical approach is on a set of exclusive and highly significant ties that are notoriously understudied – the ties that emerge from executive appointments, and the enduring relations, between chairmen and chief executives. Building on 30 years of complete historical data on executive appointments, we trace what we term the patri-lineages of father–son relations over time. We argue that, in contrast to most corporate governance scholarship, which stresses the flow of authority and power from executives to chairmen, in a managerialist system in which ownership is decoupled from corporate governance it makes more sense to reverse the directionality of the chairman–executive networks. Studying these networks – their overall structure, the presence of particular forms of subgrouping, and key actor identification – prompts us to see how “families” (in the broadest sense of the word) emerge and evolve over time to exercise corporate control.

We argue that executive appointments leave significant “network imprints,” and tracing these father–son family ties enables scholars of corporate networks to zero in on a novel set of network structures that affect individuals, firms, and corporate elites. We present a new terminology with which to characterize the family structures – or “patri-lineages” – of corporate life. We then present a description of this type of network in a Danish context, drawing on a fine-grained data set on all chairman–executive appointments from 1987 to 2016. We conclude by pointing to future research agendas to further our understanding of how networks of corporate ancestry work and evolve; how elite actors gain prominence in them; and how the networks affect the distribution of power and wealth in contemporary societies.

The chairman–executive tie in a network perspective

The literature on chief executive appointments has focused mainly on the effect of appointments on firms and their market value (Schmid and Dauth 2014; Greve, Biemann and Ruigrok 2015) and on executive pay (Berger, Koetter and Schaeck 2013). Also, the corporate governance research agenda is still spearheaded by research based on the United States, where the roles of chairman and executive are usually entrusted to the same person (Kakabadse, Kakabadse, and Barratt

2006), and as a result considerable attention has been on what is known as “CEO duality” (Allan and Widman 2000; Boyd 1995; Finkelstein and D’aveni 1994; Nahar 2004; Rechner and Dalton 1991). In most continental European countries, however, boards and board chairmen are much more independent from executive officers and play a significant role in appointing and governing the senior managers of a corporation (Mallin 2010). While the relative power of chairmen vis-à-vis executives in the appointment process varies across regions and countries (Aguilera, Goyer and Kabbach-Castro 2013), this should not prevent us from studying those appointments in their contextual settings.

A smaller literature emphasizes the role of social networks in CEO appointments. Focusing on CEO–director ties, Liu (2014) found that CEOs use the social ties they form on a board to assess outside employment options and that executive connectedness increases turnover. Hwang and Kim (2009) showed that executive compensation increases when the social networks of executives and board members overlap (see also Hallock 1997; Nguyen 2012; Kramarz and Thesmar 2013). Most of this literature focuses narrowly on the appointment event or the effect of the executive’s network position on performance and/or pay dynamics. Also, the significance of the board chairman–executive tie is often overlooked, even in systems in which chairmen have a strong voice in identifying and appointing a firm’s executives. The management and corporate governance literatures have instead focused mainly on the role of the CEO in influencing board-member selection (Shivdasani and Yermack 1999). Instead what we observe, at least in the continental context, are chairmen “heavyweights,” highly experienced and well-esteemed corporate elites that are either in the late stage of a managerial career or have already retired from executive positions and have entered the labor market for professionalized directors (Brickley, Linck and Coles 1999). Certainly, an array of actors have a stake in informing executive appointment decisions, but at least in a continental context it is widely recognized that chairmen are absolutely central to the process. Therefore, we propose to take a step back to consider the chairman–executive network, its overall structure, and the importance of subunits in the network.

Patri-lineages and dynasties from chairman–executive networks

In this paper we are investigating a certain type of corporate elite network. We ask how corporate elites reproduce and evolve; who gets to recruit the next generation of elites; and how we can think about these dynamics in network terms? Our starting point is the direct relationship between chairman and executives. Our key claim is that this relationship bears resemblance with kinship relations, and that aggregating these kinship relations produces a network with a highly significant structure that must be studied in and of itself. This perspective on the chairman–executive tie stands in stark contrast with the purely contractual portrait that the management and corporate governance literatures give. For this reason, our focus is on the directed network of chairman–executive ties that emerge from appointments:

$$i_{\text{chairman}} \rightarrow j_{\text{executive}}$$

While this tie emerges when an executive is appointed, we do not consider the tie to be merely an event. Instead, the tie is state-like, and has a duration that may help us in thinking about the strength of ties: Longer tie duration indicates strong ties of mutual trust and alignment between the chairman and the executive. The ties are therefore socially significant and carry a network imprint, also – we argue – after the formal contractual-governance bond dissolves. In interviews with an exclusive sample from the Danish corporate elite, we note that senior elite individuals narrate how the initial chairman who brought them “on board,”

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into the inner circles of the corporate elite, were instrumental in shaping their careers. They also narrate that these ties are lasting and that they have continuously mattered for their career.

The enduring character of the tie affects the structuring of corporate networks in a given socio-economic context (Larsen and Ellersgaard 2018). Note that in this paper we consider only ties in which an executive was appointed by a chairman. Conversely, we do not consider situations in which a chairman is appointed during an executive's reign; that is, when the chairman was already in place when the executive was appointed. The key idea is that chairmen exercise moral authority over an executive and that this authority imprints the identity of the executive not only during his tenure in a specific firm but throughout his career.

Also, beyond the mere dyadic level of these corporate kinship ties, we can start to consider entire graphs, aggregating these dyads into family trees. Like all family trees, we can identify the roots of ancestors and lineages of parent–children ties that connect generations in what we term “patri-lineages.” A patri-lineage is the successive backward-looking path that can be drawn from a node through the tree's branches down to its deepest root. Steps along patri-lineages are walked downstream from son to father to grandfather, and so on. Where patri-lineages denote lines of descent among corporate ancestors, dynasties instead are communities made up of the set of patri-lineages that ascend from a common root, or ancestor. Dynasties are identified upstream by following the flow from a common root through its various branches to its finest, most peripheral buds. These basic definitions allow us to trace these subgroups in larger networks, make inquiries about their structure, and identify elite corporate ancestors and families.

Description of the research project

The corporate networks research team at the Department of Organization, Copenhagen Business School (CBS), investigates, among other things, lineages of corporate ancestry, corporate elite recruitment and reproduction dynamics, the political behavior of corporate elites, and the network origins of organizational inequalities, including pay and reward structures among directors and executives. Using fine-grained data from the Central Business Register in Denmark – coupled with micro-data on individuals and firms – the team applies a range of descriptive and inferential network analytic techniques to understand the historical evolution of board, job mobility, and ownership networks and their impact on socio-political behavior and the distribution of resources, broadly speaking (the research team is funded by the Danish Council for Independent Research, Grant No. 5052-00143B, Grant-holder, Lasse Folke Henriksen).

Corporate ancestry in a Danish context

Data

Our identification of corporate ancestry rests mainly on the Danish Central Business Register (CBR). Established in 1999, the CBR lists all officially registered firms in Denmark. The register, however, also contains data from earlier registers that are verified back in time, and therefore its coverage goes back to 1987. The register contains information on the name and address of the firm, corporate form, and number of employees, as well as the name, address, and title of founders, executive managers, and board directors (including the start and end dates of all positions). The entire register sample contains 156,401 firms, and almost 2,000,000 board positions, of which we identify around 330,000 executive positions and around 140,000 board chairmen positions. Our interest is in corporate elite networks, so to consider exclusively significant nodes and edges, we sample only the 3056 firms with 100 employees or more that were active in

Table 1. Initial and select sample overview

	Select sample	Initial sample
Executive positions	9,246	333,200
Chairman positions	5,724	141,349
Firms	3,056	156,401
Executives without chairs (orphans)	3,777	213,832
Number of individuals	6,666	226,114
Number of edges	5,157	119,368

the period 1987–2016. In addition, we consider only enduring chairman–executive ties that have lasted four or more years. Four years roughly constitute the average of an elected board term, and we posit that if the dyad endures for a term or more this signifies a positive, strong tie.

This leaves us with 5724 chairmen positions and 9246 executive positions, distributed among 6666 unique individuals that are connected via 5157 directed edges. A total of 3777 executives in the select sample are what we term “orphans”; that is, they do not operate under a chairman. Given the novelty of the network type investigated here, the remainder of the article identifies basic structural properties of the network using conventional network analytic measures.

Components

The network is fragmented into 1607 components, with a mean size just above four (4.15). Most components are very small; more than 75 percent of them

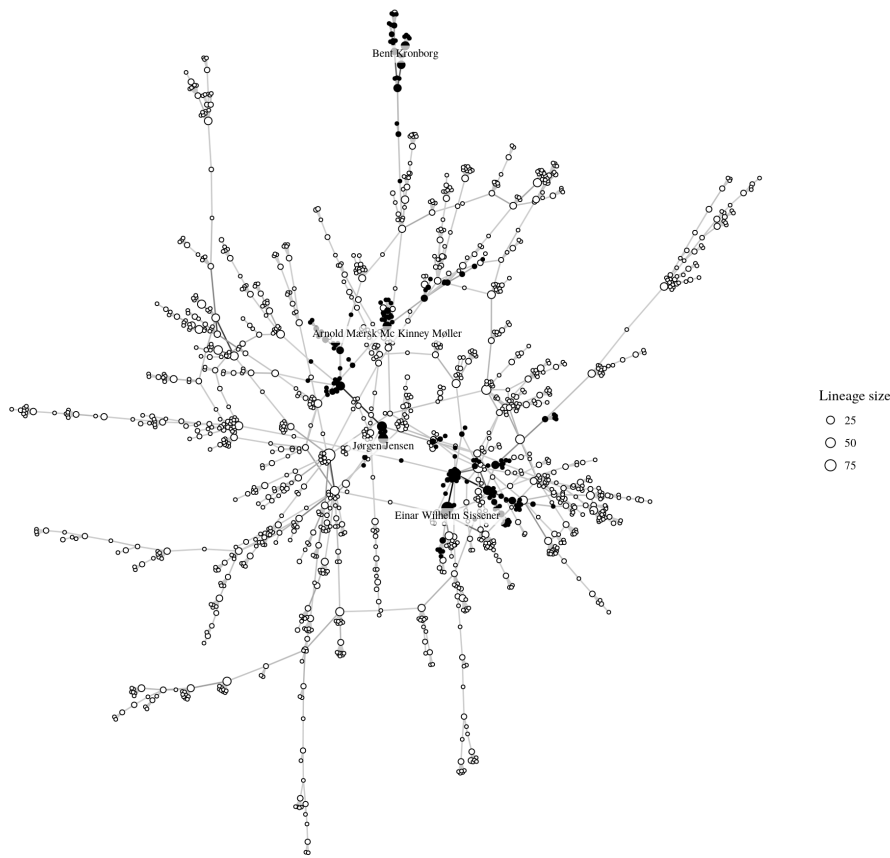


Figure 1. The largest component of the Danish chairman-executive network

contain only three or fewer nodes. Nevertheless a large proportion of the nodes in the network (around one-fifth) are connected via one large component characterized by a dense inner core of “corporate ancestors” – or roots – that branch out into a series of tree-like sub-structures (see Figure 1). This temporal center-periphery structure is common to most genealogical networks (Kornet, Metz and Schellinx 1995). In Figure 1, we depict the large component and emphasize the most prominent dynasties within it (more on dynasties below).

Degree distributions

The in-degree of a node expresses the number of “fathers” an executive has and is thus an indicator of a successful mobility strategy. Executives who have been able to move between firms and sectors in a non-erratic manner, where stable ties have been built with a series of chairmen, are at the high end of the in-degree distribution. Out-degree expresses how prolific a chairman is by counting the number of “children” he has begotten. A high out-degree can signify the “staying power” of a chairman in one or a few corporations that has experienced a number of successive transitions between different executives, or it can express a highly prolific chairman who is highly central in the

overall board network and therefore has a high degree of appointment influence. These are the two major strategies for building out-degree centrality.

We plot the distribution of in-degree and out-degree centrality in the patri-lineage network. The in-degree distribution shows that, following our definition of a positive father-son tie (four or more years with the same chairman), a few executives perform several successful transitions. The large proportion of nodes with zero in-degree are simply all those chairmen who either started their careers as executives prior to 1987 or who moved directly to a position as chairman. While the in-degree distribution is rather narrow the range of out-degrees is considerably higher. It is, in other words, much more common to appoint than to be appointed. Moreover, appointing power is distributed in terms of a power law. This means that a few chairmen have a major influence

over executive appointments, with a disproportionate say in recruiting newcomers to the corporate elite (Davis, Yoo and Baker 2003) and the control that comes with having many “children,” increasing the likelihood of spreading one’s own vision and of having strong ties in strategic firms and sectors that may sup-

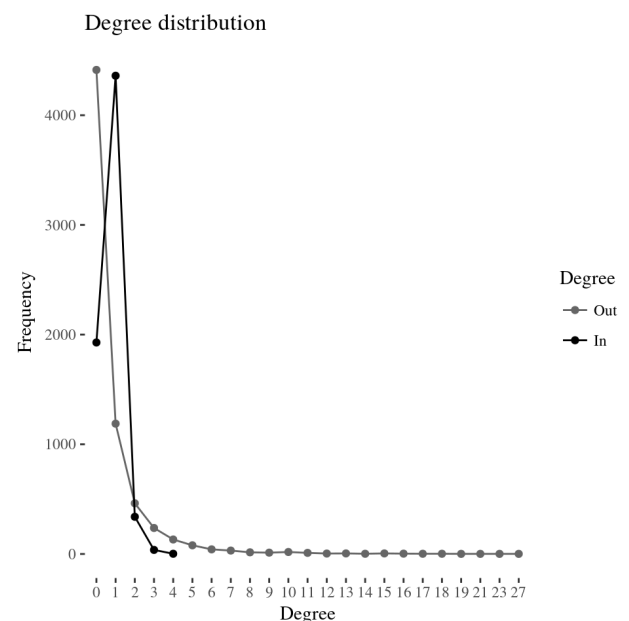


Figure 2. In- and out-degree distribution in the corporate ancestry network

port the governance functions one is exercising, as well as increasing one's elite status in the wider corporate ecology (Westphal and Khanna 2003).

Triad census

Taking a closer look at the prevalence of different triad types can tell us not only about the building blocks of the larger network itself – for example, pointing to dynamics such as clustering – but it can also tell us about local sequences of genealogical reproduction. To what extent does inbreeding occur? Is the family tree of corporate patri-lineages perfectly hierarchical or can siblings become parents to each other? In effect, are patri-lineage networks transitive or intransitive?

Triads are among the basic building blocks of corporate networks, and studying triads can tell us about the processes generating the network we observe. In undirected networks, the exercise is basic – and a simple comparison between open (A is connected to B is connected to C) and closed (A is connected to B is connected to C is connected to A) triads can give us an indication of how clustered a network is as opposed to how many brokerage opportunities a network presents actors with. For directed networks, such as the network of interest in this article, the exercise is slightly more complex given that this involves a census of all 16 possible triad types (for an overview, see Davis and Leinhardt (1972)). In Figure 3 we present the triad census of the corporate ancestry network. The census tells us that mainly four triads are structurally prevalent. First, type four, which is known as the “out star,” appears more than 9000 times, and thus represents more than 80 percent of the triad types appearing in the network. This intra-generational motif represents a chairman who has appointed two or more executives. Second, the directed line occurs 1120 times. This motif represents the smallest possible inter-generational lineage, in which a son is appointed by a father who had been appointed by his own father (therefore the son's grandfather). Here, someone who started out as a director, the father, turn into a chairman and hence starts appointing children. The in-star – that is,

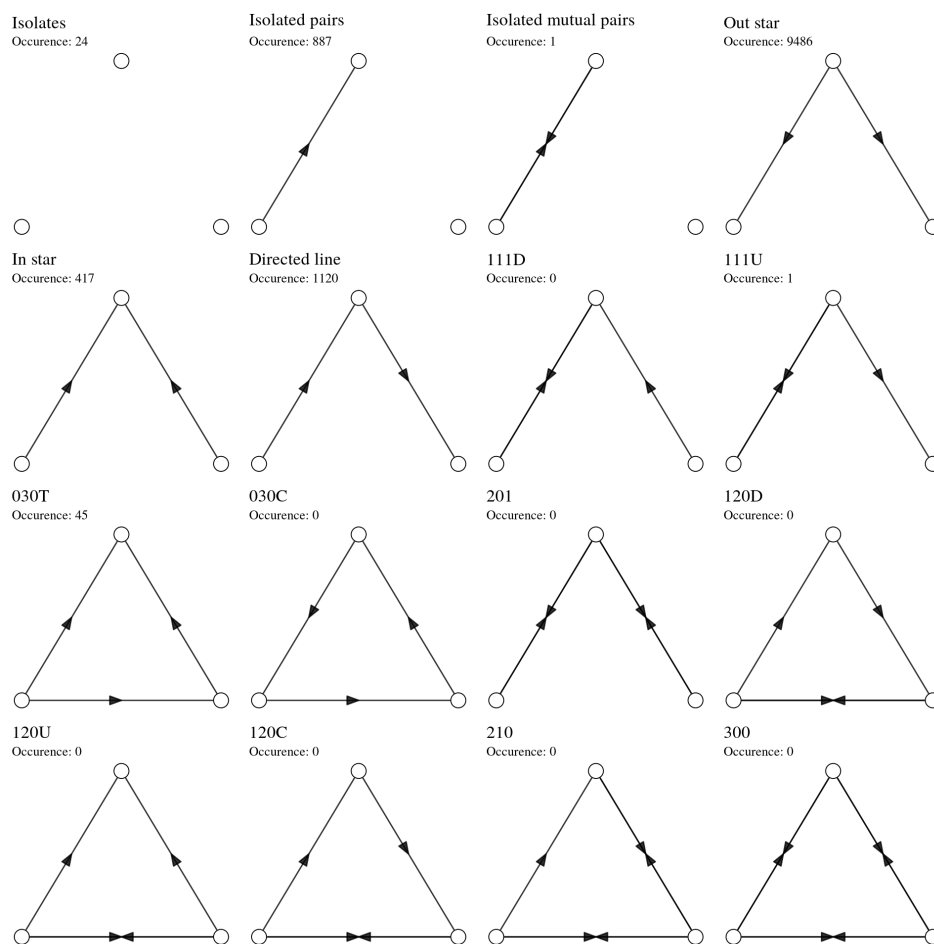


Figure 3. Triad census of the corporate ancestry network

a node that has been appointed by two different chairmen at different firms – occurs 417 times. Last, the 030T non-cyclical closed triad, occurs 45 times. This awkward triad represents a child with a direct father and a brother that took the role of father subsequently.

The absence of certain triad formations is equally interesting. Reciprocity in general is rare, and only one triad that involves reciprocal ties occurs in the network. This points to the inter-generational structure of network, with chairmen most often being older and more experienced. In fact, events in which chairmen (“fathers”) appoint executives who then, as chairmen, in turn appoint their “father” as an executive are atypical. As in real life, mutual fatherhood is extremely rare in this type of network. Lastly, triadic closure is generally rare, meaning that clustering and community formation are radically hierarchical, center-periphery-like, with triads pointing inwards and outwards with very little cyclicity. The cluster and communities that emerge from the network are therefore instead to be identified from downstream and upstream paths in the network. We point to the structure of two forms of subgroups that we claim are intrinsic to networks of corporate ancestry.

Patri-lineages and dynasties

In order to start thinking about community structure, we consider the distribution of path lengths in this network. As expected, the distribution of path lengths follows a power law (see Table 2). The longest, and most infrequent, patri-lineage is six steps long. Longer patri-lineages signify stronger the “reproductive” ca-

Table 2. Distribution of path lengths and dynasties

Path length k	Frequency in network	Frequency in largest component	Number of dynasties with patri-lineages $> k$
2	1117	801	222
3	310	289	41
4	89	86	15
5	17	17	6
6	2	2	1

capacity of elite descendants, indicating that corporate governors have been able to reproduce not only horizontally within a generation but also vertically across generations, branching out across firms and sectors. The upper boundary of this distribution is in part driven by the extension of the observation period, and in part by how long the ties endure, on average. Most of the longest paths are located in the largest component.

As noted above, patri-lineages are lines of descent among corporate ancestors, whereas dynasties make up components of patri-lineages that ascend from a common root, or ancestor. The most reproductive dynasty extends across six generations – and it consists of the two patri-lineages of length six. As shown in Figure 4, Jørgen Jensen is the common ancestor from which this, the deepest dynasty, springs. However, Jørgen Jensen is not a commonly recognized figure in the Danish corporate elite. He only appointed two sons. Instead, his one son Emil Jensen, begat six children. Having been the chairman at Falck – one of the most prominent healthcare

service corporations – for an extended period, he appointed Lars Nørby Johansen, the CEO at Falck since the late 1980s. Lars Nørby Johansen has since been a chairman at several prominent Danish corporations, and has many children and grandchildren. Clearly, he is the strongest node in this dynasty and his reproductive activities – being the third generation of the dynasty – makes the shape of the dynasty thick at the middle of the trunk.

By contrast, the second depicted dynasty, Arnold Mærsk McKinney Møller, clearly makes Mærsk the central persona in this dynasty – having begotten many children who were able to reproduce through grandchildren. However, the grandchildren have not branched out as broadly, the result being that the descent of Mærsk is threatened – or simply that the furthering of the family legacy occurs through other, more informal patri-lineage relations. The fourth to sixth dynasties depicted have a more even distribution along the different points of reproduction, suggesting that these dynasties have been effective in sustaining their reproductive capacities.

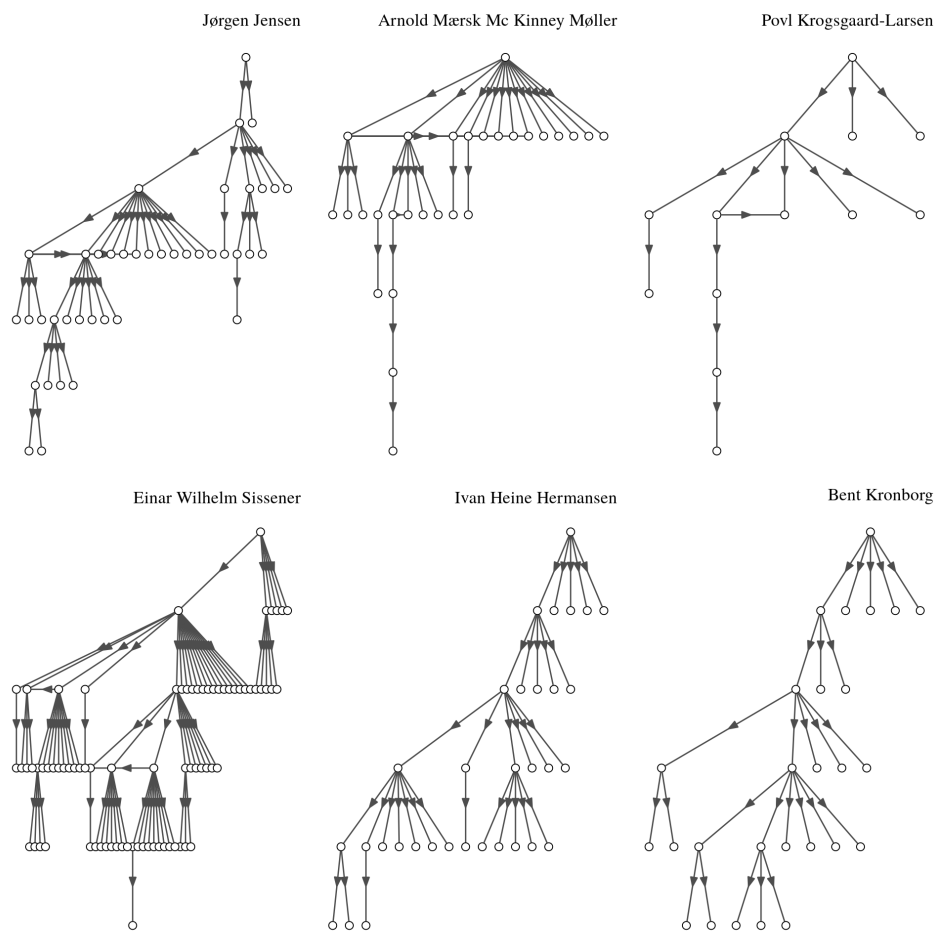


Figure 4. Dynasties of ancestors with patri-lineages of path length $k \geq 5$

Concluding remarks

In this paper we have briefly introduced a novel conception of corporate networks, namely those ties emerging from durable chairmen–executive relations in which chairmen have appointed executives. We have presented a general definition of this type of graph and we have walked the reader through a number of conventional network characteristics to explore the genealogical structure of what we have termed

networks of corporate ancestry. The short format of this article has only allowed us to present the basic framework for analyzing such networks. In our further research we are investigating more specific outcomes of reproductive power in networks of corporate ancestry, such as wealth and pay; we are identifying generative mechanisms underlying the networks via Exponential Random Graph Models; and we are extending the network by also including reverse ties of executives appointing chairmen.

Endnote

1 We intentionally continue the patriarchal metaphor as the network under investigation almost entirely consists of male corporate governors.

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