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A new stemma of *Njáls saga*

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ABSTRACT

Despite its fame as the pre-eminent medieval Icelandic saga, *Njáls saga* lacks a stemma comprehending all the saga's manuscripts. As part of the Variance of *Njáls saga* (Breytileki *Njáls sögu*) project, we produced a stemma of all witnesses to chapter 86 (forty-eight out of the total sixty or so surviving manuscripts and fragments). Besides providing an independent confirmation of the findings of Einar Ólafur Sveinsson regarding the medieval manuscripts (1953), this affords the first systematic insight into the post-medieval manuscript transmission of the saga. Our methods develop past experiments in using software created for parsimonious phylogenetic analysis to assist stemmatology. A further methodological advance is that this paper takes a first step towards learning how to crowd-source stemmatic data: the authors of the article were participants in the Tenth International Arnarnagnæan Summer School in Manuscript Studies, and undertook the core research for this paper as part of their course.

Our final stemma is rendered as a conventional dendrogram at

http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.svg and in HTML format,

incorporating all the textual evidence, at http://alarichall.org.uk/njala_sandpit/njala_stemma.php.

1. Introduction

In his introduction to what has become the standard work on the manuscript transmission of *Njáls saga*, and a landmark in Old Norse stemmatology, Einar Ólafur Sveinsson wrote:

in the present work I intend to examine the text of the parchment manuscripts of the Saga. Besides these, there are many paper copies, which have been studied only in part. Most of them will presumably not contribute much to the understanding of the problems, though there is always the possibility that some of them might fill gaps in the textual history of the Saga, but that task awaits another investigator. (1953, 3--4)

A large number of the paper manuscripts of *Njáls saga* were surveyed by Jón Þorkelsson in his

contribution to the monumental 1875--89 edition of the saga by Konráð Gíslason and Eiríkur Jónsson, and Jón made some suggestions as to possible filiations, but other manuscripts have since come to light and Jón's filiations were not systematic. Although there has been some progress on manuscripts not addressed by Einar Ólafur (Slay 1960; Jón Helgason 1962, xi--xiv; Már Jónsson 1996; Arthur 2012a; Bjarni Gunnar Ásgeirsson 2013, 38--43), the paper manuscripts of *Njáls saga* have still not received a systematic survey. Einar Ólafur wrote rather dismissively of them, assuming that they could not help him much in his project of reconstructing the lost archetype of our *Njáls saga* manuscripts. Our findings show that he was right; but in recent years interest in the transmission of sagas, both during the Middle Ages and beyond, has been growing, and it is increasingly recognised that understanding manuscript transmission is an important route into understanding the history of Icelandic literary culture, the Icelandic language, early modern Scandinavian humanism, and a range of other issues besides (on *Njáls saga* see especially Jón Karl Helgason 1999; 2005; cf. Wawn 2005; Hall and Parsons 2013).

Einar Ólafur assumed that the examination of the paper manuscripts of *Njáls saga* would be the work of one investigator. We have, however, made this a collaborative endeavour as part of the Variance of *Njáls saga* (Breytileki *Njáls sögu*) project (<http://njalssaga.wordpress.com/>) and the Tenth International Arnamagnæan Summer School in Manuscript Studies (on which see Svanhildur Óskarsdóttir 2009), and this development of collaborative approaches to stemmatology is a significant aspect of this paper's methodological contribution.

2. Methods

2.1. Crowdsourcing transcriptions

A key innovation of this article is experimenting towards the crowdsourcing of transcriptions of medieval manuscripts. As the transcriptions were undertaken by students on the Tenth International Arnamagnæan Summer School in Manuscript Studies working under professional supervision, this is not crowdsourcing of the massively open kind pioneered by, for example, the Transcribe Bentham project (<http://blogs.ucl.ac.uk/transcribe-bentham/>); the phylogenetic sequencing game *Phylo* (Kawrykow et al. 2012); or, in an earlier mode, the American New Deal Historical Records Survey (e.g. Foster 1985, 46). Even so, collaboration between the Variance of *Njáls saga* team and students in this way points to more collaborative and open approaches to stemmatological studies than have hitherto been attempted.

The Arnamagnæan Summer School in Manuscript Studies was started in 2003 as a way to promote skills and interest in the study of Scandinavian manuscripts. Participants had all undertaken a basic-level summerschool previously, or had a similar level of experience, and undertook the research reported here as part of the section of the advanced class on manuscript variation and stemmatology. Participants were each given a digital facsimile of chapter 86 of a *Njáls saga* manuscript (using the chapter numbering of Einar Ól. Sveinsson 1954). We each transcribed our manuscript into a shared spreadsheet hosted by Google Docs. This allowed participants to contribute to a single spreadsheet in real time; the software proved

robust in the face of the 15--20 participants working on it at any one time. As a guide both to reading the manuscripts and to entering correctly aligned text into the spreadsheet, the text of Einar Ólafur Sveinsson's 1954 edition of *Njáls saga* was provided, in Modern Icelandic spelling, along with the translation by Cook (2001), originally divided up with roughly one clause per column. The finalised version of this spreadsheet is available at http://alarichall.org.uk/njala_sandpit/final_spreadsheet.ods and http://alarichall.org.uk/njala_sandpit/final_spreadsheet.pdf; this provides a clear illustration of our methods. Participants proved good at sharing technological and palaeographical expertise, and as transcribers with more experience and/or easier scripts added to the spreadsheet, their transcriptions provided helpful clues to participants who were proceeding more slowly. Participants worked at very different rates, but most were able to complete the transcription of chapter 86 in three hours. Participants then collaborated in selecting columns of the spreadsheet and numbering the different variants found within them, thus encoding the manuscript variation for analysis by the free-access programs Pars and Drawgram in the Phylip suite of phylogenetic analysis software (Felsenstein 2005; Felsenstein 1986--2008; cf. 1989), in line with the methods developed by Hall (Hall--Parsons 2013).

This stage of the research produced transcriptions and a Pars--Drawgram stemma of nineteen manuscripts. This took six hours of working time, spread over two days, or 120 person-hours. (This includes some inefficiencies caused by our experimentation with online collaborative methods: more experienced palaeographers, working in a more smoothly organised environment, would have proceeded quicker.) The investment of time and the major progress afforded by this intense work proved a good motivator to the lead authors of this article to undertake further work, thus speeding the completion of the project indirectly as well as directly. The initial nineteen transcriptions and numberings were, over the following months, checked, corrected, and abetted, primarily by Zeevaert (along with Hall, Bjarni Gunnar Ásgeirsson, and Kapitan), affording an almost complete corpus of transcriptions of chapter 86 of *Njáls saga*.

2.2. Sampling

As Hall has discussed, there has been too little explicit study of how sampling is used in making stemmas (Hall--Parsons 2013, esp. section 2.2). In practice, few researchers consider all kinds of variants, all variants of their chosen kind, or even all manuscripts of their chosen text--but they also seldom offer transparent accounts of these processes of selection (for Einar Ó. Sveinsson's comments touching on this see 1953, 3--4, 15--17, 38--39). While eventually we might hope to analyse complete digital transcriptions of all *Njáls saga* manuscripts, as is steadily being done for, for example, the *Canterbury Tales* and the New Testament (cf. Robinson 2003; Parker 2012), this is still a far distant hope. To begin to assemble a stemma of all *Njáls saga* manuscripts, a series of rigorous and targeted studies are needed, which share and preserve underlying data in a way that enables later researchers to build on them.

As Einar Ólafur emphasised, the stemma of *Njáls saga* involves an unusually large number of manuscripts with multiple exemplars, no doubt partly because of the saga's great length and the consequent difficulty of borrowing a manuscript for long enough to copy it in its entirety, and

partly because it was perceived as a historical text, encouraging early scholars to collate different manuscripts in search of the most truthful account (1953, 27--29, 38--39). Drawing a stemma is also complicated by the large number of fragmentary manuscripts: obviously fragments can only be filiated on the basis of sections of the saga to which they are witnesses, and there is no section of the saga to which all witnesses attest. These points can readily be appreciated by comparing the size of Einar Ólafur's full stemma of the saga (concise version at http://alarichall.org.uk/njala_sandpit/stemma_EOS.svg and detailed version at http://alarichall.org.uk/njala_sandpit/stemma_EOS_detailed.svg) with the much smaller one produced by focusing only on his witnesses to chapter 86 (http://alarichall.org.uk/njala_sandpit/stemma_EOS_kap_86.svg). This article is, then, necessarily only one of what needs to be a series of studies. At times the confidence we have in its findings is limited because some manuscripts are too similar to one another for precise filiation, and future research extending the sample is necessary to resolve this. Meanwhile, many of the manuscripts analysed will have multiple exemplars, but only draw on one for chapter 86. Thus while our stemma of *Njáls saga* will not be wrong on this account, it will be incomplete. We chose chapter 86 because it was short enough for most students to transcribe it during the time available in the summer school and because it is witnessed by the early fourteenth-century fragment AM 162 B fol θ, a fragment which is important because of its close relationship with the lost but widely copied medieval manuscript *Gullskinna (Már Jónsson 1996). The chapter is, in Einar Ólafur Sveinsson's edition, 392 words long, somewhat longer than the 317-word sample used by Hall and Parsons (2013, §30).

The following manuscripts and fragments do not include chapter 86 so are excluded from this article:

AM 162 B fol β (c. 1300)

AM 162 B fol δ (c. 1300)

AM 162 B fol ζ (c. 1325)

AM 162 B fol γ (c. 1325)

AM 162 B fol κ (c. 1350)

GKS 2869 4to (c. 1400)

AM 162 B fol ι (1400×1425)

AM 162 B fol α (1400×1500)

Lbs fragment 2, JS fragment 4, AM 921 I 4to, and Þjóðminjasafn I (1570×1630, all thought to derive from the same manuscript: Arthur 2012d)

Þjóðminjasafn II (c. 1600)

SÁM 33 (1700×1800)

AM 576 a 4to (1660×1695)

We also omitted two manuscripts held outside Iceland for which we did not have access to facsimiles: Stockholm papp. fol 9 and Oslo, Universitets Bibliotek 372 4to. The former is an antiquarian copy made in Sweden by Jón Vígfússon for the Antikvitetskollegiet in 1684, which Jón Porkelsson (1875--89, 759--60), on the basis of its incipits, thought was probably derived from Oddabók (AM 466 4to). The latter was described Jónas Kristjánsson (1967, 83 [no. 113])

as being a paper manuscript completed in 1772 by Engilbert Jónsson in Hítardalur. Jónas stated that UB 372 4to was copied from UB 313 4to, pointing out that Engilbert Jónsson was in 1772 deacon to the priest Vigfús Jónsson, the son of the priest Jón Halldórsson, the scribe of UB 313 4to. We have therefore included UB 372 4to as a child of UB 313 4to in our final manuscript on this basis. Our omission of these two manuscripts is unfortunate, though assuming Jónas was right in his filiation, we are still left with a complete picture of the manuscript transmission of *Njáls saga* chapter 86 in Iceland. Their omission does, however, indicate a useful feature of our methodology, which is that with the transparent publication of our data, it will be easy for future researchers to check the conclusions of Jón Þorkelsson and Jónas Kristjánsson and fit these manuscripts into their proper place in the stemma.

Finally, we omitted as being outside our scope the eighteenth-century Swedish translation in Stockholm fol 93 papp. (on which see Jón Karl Helgason 1999, 26) and the summary in AM 576 a 4to (1660×95). However, we did include the first printed edition of the saga, published by Ólafur Ólafsson in Copenhagen (Olavius 1772), as well as the 1776 reprint, on the expectation (which proved correct) that these would be necessary to understand the manuscript tradition.

Within our sample of chapter 86, we captured all lexical and morphological data. We did not attempt to capture orthographic data, which is in keeping with convention in Old Norse stemmatology, though it might nonetheless have deprived us of relevant evidence: thus Jón Helgason (1962, xiii), for example, found spelling variation in the preposition *úr* to be indicative in the filiation of different sections of Reykjabók (AM 468 4to). Accordingly, students were asked to transcribe their manuscripts into normalised Modern Icelandic spelling. Many were not confident enough in their language skills to do this, however, and produced semi-diplomatic transcriptions, which were later normalised by Hall and Zeevaert. Variation in the transcriptions posed no difficulty for the research because Pars requires manual encoding of variants, but other approaches to transcription might have been more appropriate (cf. Zeevaert forthcoming).

3. Results

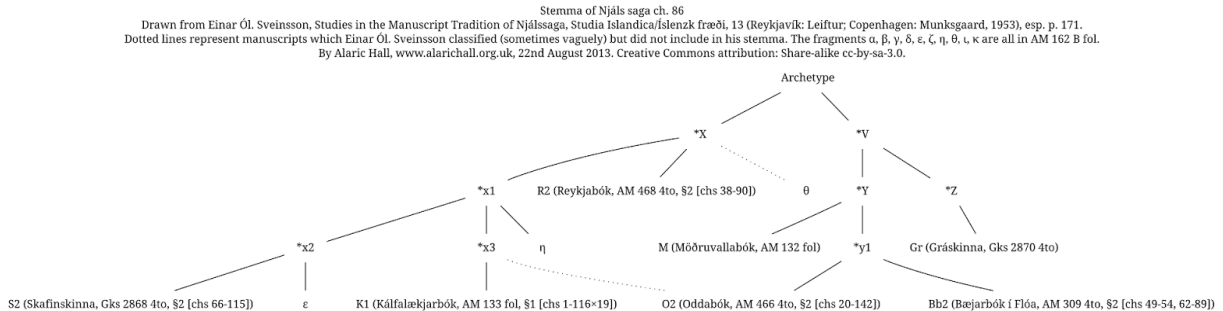
Running our data through Pars and turning the output into a consensus tree using Drawgram, we get the stemma at http://alarichall.org.uk/njala_sandpit/plotfile.png. The version of the stemma presented here uses the final form of the spreadsheet, which benefited from the correction of numerous errors during later analysis, so in practice earlier Pars–Drawgram stemmas were somewhat different from this one. Unrooted stemmas, produced using Drawtree, were also used in the early stages to avoid prejudging the rooting of the stemma.

It will be immediately obvious that most of the post-medieval manuscripts form one group, a branch little evidenced in medieval manuscripts. These manuscripts are known to be related to a lost medieval manuscript which seems to have been owned by Brynjólfyr Sveinsson (1605--75), bishop of Skálholt. We discuss this manuscript, which he called Gullskinna, in section 3.4 below. As described in section 3.1, we proceeded to refine the Pars–Drawgram stemma with human analysis. The rest of this section focuses on comparisons between our findings and previous work by other scholars. It might be useful during the following discussion to refer to our

final stemma, rendered as a conventional dendrogram at http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.svg and in HTML format, incorporating all the textual evidence, at http://alarichall.org.uk/njala_sandpit/njala_stemma.php.

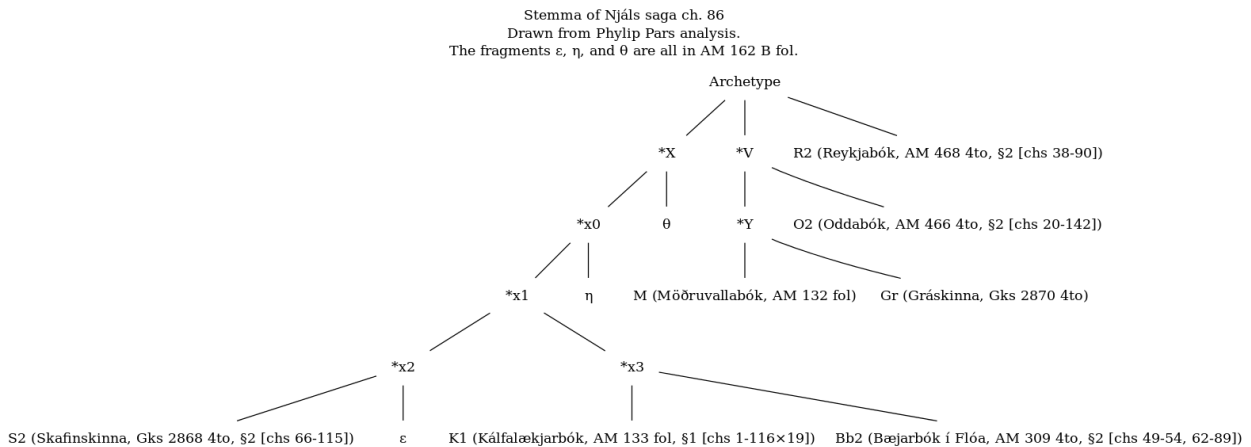
3.1. Comparison of our stemma with Einar Ólafur Sveinsson's

Here is Einar Ólafur's stemma of the vellum manuscripts and fragments, adapted to represent only the relationships at chapter 86:



http://alarichall.org.uk/njala_sandpit/stemma_EOS_kap_86.dot
http://alarichall.org.uk/njala_sandpit/stemma_EOS_kap_86.svg

Running our transcriptions of only these manuscripts through a Pars–Drawgram analysis produces this stemma (here rooted to provide the closest fit with Einar Ólafur's for ease of comparison):



http://alarichall.org.uk/njala_sandpit/stemma_pars_kap_86_for_comparison_with_EOS.dot
http://alarichall.org.uk/njala_sandpit/stemma_pars_kap_86_for_comparison_with_EOS.svg

We compared this Pars–Drawgram stemma with Einar Ólafur's using the method established by Roos and Heikkilä (2009, 420–21), implemented using Roos's program [Rankdistance](#). (For this

analysis, we removed manuscript *Z from Einar Ólafur's stemma, as its existence is inferred from manuscripts which do not contain chapter 86, filiating Gráskinna as a direct descendant of *V.) The Pars stemma scored a very respectable 78.5% similarity (compare the scores gained using phylogenetic software by Roos and Heikkilä 2009, 422 Table 3; Hall and Parsons 2013, §§33–35), providing mutually supportive evidence for the validity of Einar Ólafur's methods and for our implementation of Pars and Drawgram. The main difference between the stemmas lies in the detail of how many lost manuscripts are reconstructed, with Pars inferring more for the *X branch and fewer for the *Y branch. This is partly because of one substantial difference: Pars's filiation of Bæjarbók as a descendant of *x3 rather than a *Y-manuscript. This is consistent with Einar Ólafur's filiation of chapters 38–42 and 118–20 of this manuscript (Bb1 and Bb3 in his system of sigla), but not with his filiation of chapters 49–54 and 62–89 (Bb2), which he saw as descendants of *y1 (though he did notice 'some correspondences' with *x3 in chapter 82). As a glance at the texts in our [html stemma](#) will show, Pars is surely right here, and we must reckon on a slightly more complex relationship between Bæjarbók and its two exemplars than Einar Ólafur realised. This could be the subject of future targeted research.

Using the Pars–Drawgram stemma rather than Einar Ólafur's as a starting point, we then analysed the relationships of all the manuscripts ourselves, checking Pars's analysis (this was primarily undertaken by Hall). We asked whether manuscripts which Pars identifies as close relatives separated by lost manuscripts (represented on the Pars–Drawgram stemma as unlabelled nodes) could rather have a parent–child relationship. This process seeks to increase the parsimony of the stemma by removing unnecessary nodes. Then, starting from the ends of branches, lost common ancestors of chapter 86 were reconstructed, with recursive checking as more reconstructions were completed (the outcome being presented in html format at http://alarichall.org.uk/njala_sandpit/njala_stemma.php and as a conventional dendrogram at http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.svg). We attended particularly to qualitative evidence not available to Pars: the significance of omissions and additions, the dates of manuscripts, and the likelihood of common innovation and reticulation, and the possibility that readings marked as different in our encoding of the data for Pars might nonetheless show distinctive similarities suggesting a common origin. Our reasoning is shown through the [html stemma](#). Apart from the transference of Bæjarbók from the *y1 branch to the *x3 branch, our revision of the Pars–Drawgram stemma agrees with Einar Ólafur's, verifying his work and emphasising that while useful, our Pars–Drawgram method can be improved through human analysis of the data. Since chapter 86 is short, and the number of variants distinguishing different manuscripts sometimes small, it was not self-evident that it would be possible reliably to create a stemma from chapter 86 alone. However, the close comparison with the results of Einar Ólafur's more extensive sampling is encouraging, suggesting that close analysis of small samples can be a powerful method in stemmatic study.

3.2 Ólafur Ólafsson's Copenhagen edition of 1772

The first printed edition of *Njáls saga* came out in 1772, and was based primarily on Reykjabók (AM 468 4to) with reference to Kálfalækjarbók (AM 133 fol) and, to a lesser extent (at least in chapter 86), Möðruvallabók (AM 132 fol) (Olavius 1772, prologue). We included it in our

stemmatic analysis partly to detect whether any manuscripts were copied from the edition, but also as a test of our methodologies: in theory, we should have detected that the text was a conflation of these manuscripts. Pars situated Ólafur's edition as a more innovative close relative of Reykjabók, slightly more closely related to Kálfalækjarbók than Reykjabók. Given that Pars is not set up to cope with conflation, this is pretty much as good a result as might be hoped. Hall's analysis found the edition putatively to be a conservatively copied descendant of *x3, the parent of Kálfalækjarbók and niece of Reykjabók, and identified no influence from other sources, assuming that the one reading shared only with Möðruvallabók and its relatives (column AO on the spreadsheet) represented common innovation (as is presumably actually the case in column X, which shares a reading found in none of Ólafur's stated sources but in a number of other manuscripts). This result is, of course, factually wrong, and emphasises that parsimonious stemmatic methods do not necessarily produce the correct result--only the most likely result given certain starting assumptions. But it is also close to the truth, indicating that while it is easy to misinterpret conflations of relatively closely related manuscripts, the results are still fairly close to the truth.

And indeed the 1772 edition was integrated into the manuscript tradition: it seems to have been copied by the scribes of Lbs 747 fol, Guðlaugur Magnússon and Guðmundur Magnússon. Their version shows a rather different conception of the geography of the Njálssynir's foreign exploits from the other manuscripts: the northern Scottish region of Ross (Rós) becomes the homelier Hrossey ('Horse-isle') and rather than travelling *norður* ('north') from there to Norway, they travel there *norðan* ('from the north'). The 1772 edition was also used by a later annotator of Lbs 437 4to to replace the chapter numbering of the manuscript with new numbering and chapter titles.

3.3. Manuscripts descended from surviving medieval manuscripts

Pars-Drawgram was not perfect in its filiation of post-medieval manuscripts with surviving medieval ones, for example finding the fourteenth-century Kálfalækjarbók (AM 133 fol) to be more innovative than the 1697 AM 464 4to, which is known on external evidence actually to be a copy of Kálfalækjarbók (Jón Þorkelsson 1875--89, 674--75). But its clustering of manuscripts was convincing and helpful (cf. Hall and Parsons 2013, section 2.4). In a few cases, the small size of our sample made it impossible to filiate manuscripts precisely because their texts were identical: this is the case for the medieval Reykjabók (AM 468 4to) and what must be identical copies thereof, AM 467 4to and Landakotsbók.

A few of the copies of these manuscripts include notes as to their exemplars, so after undertaking our own analysis, we checked discussion in the secondary literature. In most cases, our agreement or disagreement with existing claims is straightforward, and these instances are listed in the following table. Unless noted, the source for quotations and facts below is the online catalogue of Icelandic manuscripts, handrit.is:

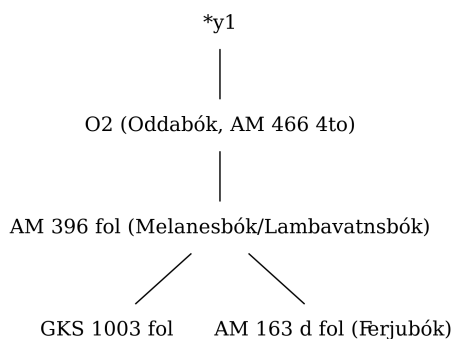
| call no | filiation according to secondary literature | agreed? |
|------------|--|---------|
| AM 467 4to | Reckoned to be copied from Reykjabók (AM 468 4to) (cf. Einar Ól. | Y |

| | | |
|------------------------|---|-----|
| | Sveinsson 1953, 6). | |
| ÍB 421 4to | Reckoned to be a copy by Árni Magnússon's brother Jón of Reykjabók (AM 468 4to) (cf. Einar Ól. Sveinsson 1953, 6). This is consistent with our data, but we could not disprove the possibility that ÍB 421 4to was copied from the earlier manuscript identical to Reykjabók, AM 467 4to. | (Y) |
| AM 135 fol | A manuscript made between 1690 and 1697 in Norway for the eminent saga-scholar Þormóður Torfason (1636--1719) by Ásgeir Jónsson. It was viewed by Árni Magnússon as a copy of Gráskinna (GKS 2870 4to). Jón Þorkelsson agreed but added that parts were from another manuscript, which he did not identify (1875--89, 720--21). We found the second half of chapter 86 indeed to be from Gráskinna, and the exemplar for the first half to have been Skafinskinna (GKS 2868 4to). | (Y) |
| Hofsbók (AM 134 fol) | Reckoned at handrit.is to be a copy of a vellum manuscript, 'mögulega Gráskinnu, GKS 2870 4to' ('possibly Gráskinna'). Meanwhile, Jón Þorkelsson thought Hofsbók was an indirect copy of *Gullskinna, with marginal corrections from *Gullskinna itself and from Gráskinna (1875--89, 719--20). Neither claim can be true for chapter 86, which is a copy of AM 309 4to (Bæjarbók), though there is indeed one marginal collation with *Gullskinna. Further research would show whether other parts of the manuscript are indeed drawn from *Gullskinna. | N |
| Hvammsbók (AM 470 4to) | Reckoned to contain corrections from Kálfalækjarbók (AM 133 fol) (cf. Einar Ól. Sveinsson 1953, 7). | Y |
| AM 464 4to | Recorded by Árni Magnússon to have been copied from Kálfalækjarbók (AM 133 fol) (cf. Einar Ól. Sveinsson 1953, 7). (Gaps were apparently filled from AM 137 fol and other readings recorded from other manuscripts, including Hvammsbók (AM 470 4to), but we did not detect these in chapter 86.) | Y |
| Thott 984 fol III | Jón Þorkelsson thought that this was a direct copy of Oddabók (AM 466 4to) (1875--89, 746). This cannot be true for this chapter, which is of the *Gullskinna class. | N |

For the most part, then, our findings supported previous inferences. We believe, however, that in a few cases we have been able to refine or correct previous claims.

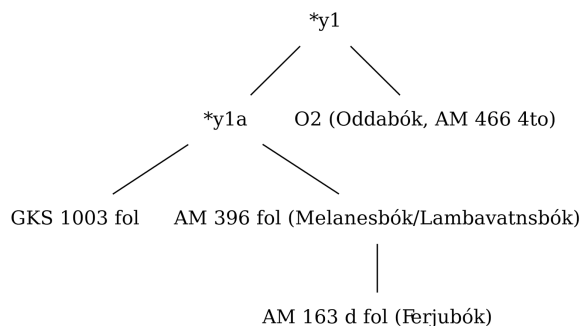
There has also been some research into the descendants of Oddabók (AM 466 4to). These include a late vellum manuscript, GKS 1003 fol, not studied by Einar Ólafur, who simply said that it must 'belong to the paper manuscripts of the Saga and ought to be studied with these', (1953, 14). The research was undertaken by Desmond Slay and Ólafur Halldórsson, which Slay

reported without examples (1960, 147--48; some examples are, however, provided by Arthur 2012a, 4--5). They suggested this stemma:



http://alarichall.org.uk/njala_sandpit/stemma_slay_1960.svg

However, we inferred this stemma:



http://alarichall.org.uk/njala_sandpit/stemma_y1.svg

Obviously these stemmas are similar, and our agreement that Ferjubók (AM 163 d fol) derives from Melanesbók (AM 396 fol) is noteworthy in view of Arthur's equivocation over which of the two is the parent and which the child (2012a, 5). But we concluded that GKS 1003 fol and Melanesbók shared conservative readings not present in Oddabók, and so could not be copies of it, and also had individual conservative readings, and so could not be copies of one another. Here are the key readings, with the column numberings from our core spreadsheet; we exclude Ferjubók because in all cases its text is identical to its exemplar, but for comparison we include Oddabók's closest (but generally more conservative) relative, Möðruvallabók, and two other good representatives of the archetype of *Njáls saga*, Reykjabók and Gráskinna, marking cells with common readings in the same colour:

| Spreadsheet column | J | AY | BH | CQ | CU |
|--------------------|---|----|----|----|----|
|--------------------|---|----|----|----|----|

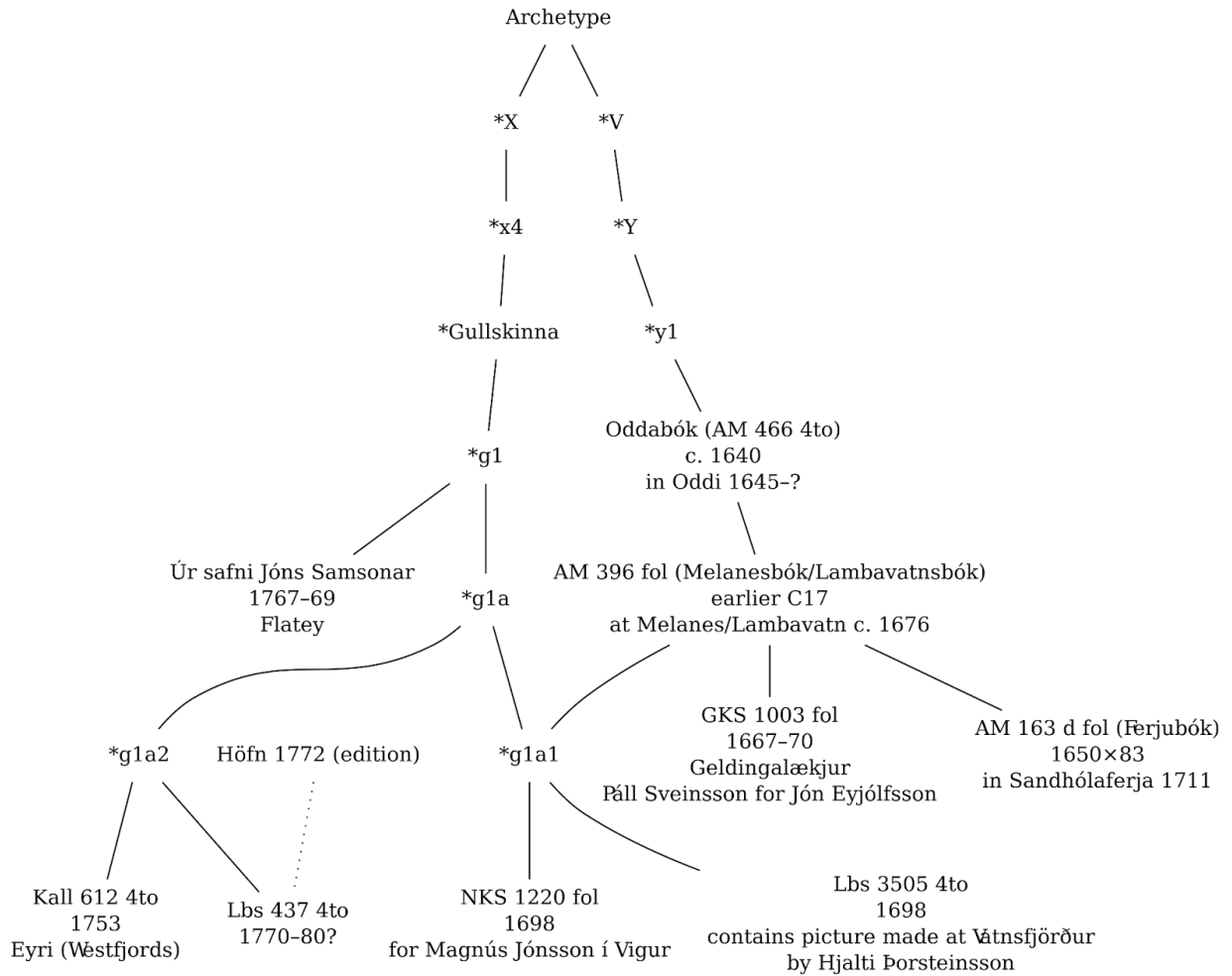
| | | | | | |
|---|--------------------|--------------|--|-----------------------|------------------------|
| AM 468 4to (Reykjabók): X-class | Síðan fór jarl | verður þá þó | Kári skaut aftur spjótinu og í gegnum jarlinn | og fóru við það aftur | um veturinn |
| GKS 2870 4to (Gráskinna): Z-class | Síðan fór jarl | varð þá | Kári skaut aftur spjótinu og í gegnum jarlinn | og fara við það aftur | um veturinn |
| AM 132 fol (Möðruvallabók): Y-class | [...]jarl | verður þá þó | Kári skaut aftur spjótinu og í gegnum jarlinn | fóru við það aftur | um veturinn |
| AM 466 4to (Oddabók) | [Sig]urdr jarl fór | verður þá | Kári skaut aftur spjótinu og í gegnum jarlinn | fóru við það aftur | um sumarið og veturinn |
| AM 396 fol (Melanesbók/ Lambavatnsbók) | Sigurður fór | verður þá | en hann henti á lofti og sendi aftur og í gegnum jarl. | og fóru við það aftur | um sumarið og veturinn |
| GKS 1003 fol | Sigurður jarl fór | verður þá þó | en hann henti á lofti og skaut aftur og í gegnum jarl | og héldu svo aftur | um veturinn |

Thus in column CQ, Melanesbók seems to have a more conservative reading than Oddabók, and although GKS 1003 fol's reading here is unique, it is more similar to Melanesbók than to Oddabók. This implies that Melanesbók and GKS 1003 fol are not direct descendants of Oddabók, but rather of Oddabók's putative lost exemplar (labelled by Einar Ólafur Sveinsson as *y1). Meanwhile, GKS 1003 fol is more similar to Oddabók than Melanesbók in column J and although its reading in column BH is unique it is, in using the verb *skaut*, more similar to Oddabók than to Melanesbók. This implies that it is not a copy of Melanesbók and that both must be children of a lost parent.

However, these relationships are contradicted by columns AY and CU (where Oddabók and Melanesbók agree against GKS 1003 fol), and CQ where Oddabók agrees with Möðruvallabók. Unless we profoundly change the stemma supported by the vast majority of readings, some of these correspondences can only be explained by two scribes independently making common innovations somewhere in the tradition represented in the table (or by a scribe referring to multiple exemplars, though their choices of collations would be odd ones if so). Given that both stemmas must involve similar amounts of independent common innovation, the more economical is that of Slay and Ólafur Halldórsson, because it infers fewer lost manuscripts. Thus the relatively innovative GKS 1003 fol coincidentally contains some readings which happen to be the same as Oddabók (in the case of columns J and BH) or other manuscripts (in the case of column CU). That we did not come to this conclusion ourselves is our error. A larger sample, helping to make the overall trends clearer, would have reduced the chances of this happening.

These manuscripts have been the subject of relatively intensive study, to which our new research can contribute by situating the stemma-branch established by Slay in a wider context. We begin by summarising the state of knowledge about these manuscripts before building on this with our new findings; the following excerpt from our stemma and map likewise summarise this information.

Excerpt from stemma of Njáls saga ch. 86. Dotted lines indicate later additions.



http://alarichall.org.uk/njala_sandpit/stemma_excerpt.svg



http://alarichall.org.uk/njala_sandpit/njala_MSS.kmz

We do not know where Oddabók was originally copied, but in 1645 Þorleifur Jónsson (1619--90), a member of the powerful Svalbarð family, brought it southwards with him when he became schoolmaster at one of the pre-eminent churches in Iceland, Oddi (63.777205,-20.386548), in the midst of the region where most of *Njáls saga* is set. Þorleifur later became priest at Oddi from 1651 to his death. He must have passed the manuscript on to his son, Björn Þorleifsson (1663--1710), who was himself priest at Oddi, at first as assistant to his father, from 1687 until

he became bishop of Hólar in 1697. Oddabók was then, according to our analysis, copied as the text of *Njáls saga* now in AM 396 fol. This analysis is supported by the fact that there is an annotation on f. 51v of Oddabók in the hand of the scribe of AM 396 fol (Slay argued that this hand was also that of Páll Sveinsson, the scribe of GKS 1003 fol, but Arthur (2013c) disagrees, and we accept her conclusion here.) AM 396 fol has been known as Melanesbók/Lambavatnsbók because it contains two sagas whose colophons place their copying at Melanes (65.446743,-23.950152) and the nearby Lambavatn (65.49378,-24.092503) in the Westfjords. The name is unhelpful for our purposes, however, as the manuscript in its present form is a 1731 compilation of earlier manuscripts of disparate origins: thus the fact that parts of AM 396 fol originated in the Westfjords does not mean that the part containing *Njáls saga* did. The *Njáls saga* portion of AM 396 fol seems to be from the early or mid-seventeenth century (Arthur 2012c) and so may have been copied from Oddabók while it was still in the north of Iceland or after it came to Oddi. The scribe of AM 396 fol also produced the manuscript now represented by the fragments Lbs fragment 2, JS fragment 4, AM 921 I 4to, and Þjóðminjasafn I (Arthur 2012d) which were excluded from our analysis because they do not contain chapter 86. Einar Ólafur Sveinsson concluded that these fragments were copied not from Oddabók itself but from its lost exemplar (*y1; 1953, 83--85), and fuller analysis both of the fragments and of AM 396 fol would be worthwhile to see whether Einar Ólafur was right and whether the same conclusion might not also hold for AM 396 fol: if so, AM 396 fol is a primary witness to the lost archetype of *Njáls saga*. For present purposes, we have stuck with the results of our own analysis, that AM 396 fol descends from Oddabók.

AM 396 fol was then copied by an unknown scribe into another enormous saga-collection, now dismembered and surviving as AM 110 fol, AM 163 d fol, AM 125 fol, AM 163 c fol, AM 163 a fol, AM 163 b fol, and AM 202 g fol II, produced between around 1650 and 1683. We do not know where this copy was made, but Árni acquired it in 1711 from 'Sigurði á Ferju', aka Sigurður Magnússon of Sandhólaferja (63.827289,-20.673738), about twenty kilometres west of Oddi (cf. Arthur 2012b, 220--21). It would thus be economical to suppose that the *Njáls saga* in AM 396 fol was copied at Oddi and circulated in the region, also serving as an exemplar for Ferjubók. This is consistent with the fact that in 1667--70 the wealthy if rather obscure farmer Jón Eyjólfsson of Eyvindarmúli (63.717989,-19.84354), thirty kilometres west of Oddi, had one Páll Sveinsson copy him two huge, beautiful, vellum folio volumes---among the very last parchments to be made in Iceland---containing, amongst other things, *Njáls saga*. Páll is no better known a figure than Jón Eyjólfsson but was certainly a prolific scribe of prestigious manuscripts, associated with Geldingalækjur, about fifteen kilometres north of Oddi (63.883546,-20.261343; <http://handrit.is/is/biography/view/PalSve001>; Lansing 2011, 34). Páll used the AM 396 fol *Njáls saga* as the exemplar for the volumes he made for Jón Eyjólfsson, now GKS 1002--3 fol. By 1692, GKS 1002--3 had come into the hands of Björn Þorleifsson---from whose father the Oddabók text of *Njáls saga* seems to have come into AM 396 fol in the first place, bringing this branch of the textual transmission full circle. Breaking the cycle, Björn rebound GKS 1002--3 fol and gave them to King Christian V of Denmark in 1692, and at some point gave Oddabók to Árni Magnússon. For the seventeenth century, then, we can see a local circulation of the version of *Njáls saga* contained in Oddabók around the area where the saga is itself set.

It seems clear, then, that AM 396 fol spent a lot of time, and may have been copied, in the vicinity of Oddi. However, by 1731 it was in the Westfjords. How or when it came there is unknown, but a marginal annotation suggests that it was available to Jón Ólafsson when he was copying other sagas at Melanes and Lambavatn in 1676--77 (Arthur 2012c). It seems reasonable to guess that it made its way north after Páll Sveinsson finished copying it around 1670. It is at this point in the history of AM 396 that our new findings help us to understand its history. It seems that a further copy of AM 396 fol was made, and that this copy conflated the AM 396 fol text with a descendant of *Gullskinna, to create a now lost manuscript which we have called *g1a1, sometime before 1698, when our two surviving copies (NKS 1220 fol and Lbs 3505 4to) were made. Of these two surviving copies, we only have a clear provenance for NKS 1220 fol, which was once part of AM 426 fol, copied in and around Vigur for the magnate and manuscript collector Magnús Jónsson í Vigur (1637--1702; Handrit; Jón Þorkelsson 1875--89, 745). AM 426 fol was copied around 1670--82 and the *Njáls saga* section of that manuscript, which is now in NKS 1220 fol, was copied in 1698. AM 426 fol famously contains three full-page illustrations by Hjalti Þorsteinsson (1665--1754); none is present in the NKS 1220 fol *Njáls saga*. However, a corresponding illustration is preserved in Lbs 3505 4to, where it was folded to fit into the smaller manuscript. Hjalti lived and worked at various ecclesiastical institutions in Iceland as well as in Copenhagen, but from 1692 to his death lived within five kilometres of Vigur in Vatnsfjörður (65.960811,-22.469444). Given that a picture evidently intended for AM 426 fol--NKS 1220 fol ended up in Lbs 3505 4to, the fact that Lbs 3505 4to has the same exemplar as NKS 1220 fol, and the fact that the manuscripts were both copied in 1698, the two must arise from a closely connected context, presumably both produced around Vigur, perhaps while *g1a1 was on loan there. The closest localisable relatives of *g1a1 on the Gullskinna side are from the Westfjords (Kall 612 4to, 66.008911,-22.923832) and Flatey (úr safni Jóns Samssonar, 65.37391,-22.919583) so it is fairly likely that the *g1a1 conflation was itself made in the north-west after AM 396 fol came there.

Apart from the relatively lively circulation of the Oddabók version of *Njáls saga*, however, what is perhaps most striking is how little copied other manuscripts seem to have been: we owe the copies of Reykjabók largely to Árni Magnússon's early eighteenth-century antiquarianism; Möðruvallabók and Bæjarbók were each copied only once (in conflation and collation with *Gullskinna), and Gráskinna and Skafinskinna only in an antiquarian copy made in Norway. All told, our stemma contains only sixteen manuscripts (and one reconstructed one) descended, directly or indirectly, in whole or in part, from surviving medieval manuscripts. Fuller sampling of the manuscripts will doubtless complicate this picture, but it remains striking. It is hard to know how far these patterns reflect patterns of manuscript production and how far they reflect patterns of manuscript collection and survival; either way, the opportunities, choices, and social networks of a fairly small number of powerful and mostly closely related seventeenth-century literati will have been important in determining which medieval manuscripts were mediated into wider circulation (cf. Arthur 2012b; Springborg 1977).

3.4. Manuscripts descended from *Gullskinna

As mentioned above, there remains a large group of manuscripts which form a distinct branch of

their own with no surviving medieval manuscript source. External evidence shows that these must be related to a lost medieval manuscript, *Gullskinna, most closely studied hitherto by Jón Þorkelsson (1875--89, 723--30) and Már Jónsson (1996). By contrast with most of the parchment manuscripts of *Njáls saga*, then, *Gullskinna went viral: our sample found twenty-seven manuscripts descended in whole or in part from *Gullskinna; our stemma demands the reconstruction of ten lost copies besides; and it is further believed that the fragment Þjóðminjasafn II, which does not contain chapter 86, also descends from *Gullskinna (Jón Helgason 1962, xiv n. 9). As our findings emphasise, *Gullskinna must have been closely related to the fragment AM 162 b fol θ (Már Jónsson 1996), which was copied in the first half of the fourteenth century and is of unknown provenance (Stegmann 2011, xvii--xx), and of which no copies survive. Jón Helgason found that *Gullskinna must be the niece of Reykjabók (AM 468 4to), making it an independent (if innovative) witness to the lost archetype of *Njáls saga* (1962, xii--xiii), and our findings independently confirm this.

For the most part, the Pars--Drawgram clustering of the descendants of *Gullskinna is accurate, but our analysis significantly reassigned two manuscripts. AM Acc 50, from 1770, was filiated by Pars as a sibling of θ. This would be remarkable if true, making it an almost unique witness to a lost early manuscript. However, AM Acc 50 is highly innovative, making it hard to filiate accurately. To our eyes, it is just as plausible that AM Acc 50 descends from *Gullskinna. Further research, drawing on a larger sample, would help to determine whether it derives from *Gullskinna itself (as we have supposed) or from a copy. Meanwhile, AM 465 4to, from the second half of the seventeenth century, was filiated by Pars as deriving from an earlier ancestor of θ and *Gullskinna, intermediate between Möðruvallabók's ancestor (*V in Einar Ólafur Sveinsson's stemma) and *Gullskinna. Again, this would be remarkable if so. It seems clear, however, that AM 465 4to is (as Jón Þorkelsson found: 1875--89, 735) actually a conflation of the texts of *Gullskinna (or a close copy) and Möðruvallabók (AM 132 fol; or a lost, close copy) and should be seen as a descendant, rather than an ancestor, of both.

While its clustering proved reliable, Pars--Drawgram inferred a very large number of lost manuscripts, and it is likely, as usual, that there was actually a much smaller number. Jón Þorkelsson identified four manuscripts as deriving directly from *Gullskinna: AM 136 fol, AM 137 fol (*Vigfúsarbók*), AM 470 4to (*Hvammsbók*, subsequently corrected by the scribe from *Kálfalækjarbók*), and AM 134 fol (*Hofsbók*) (1875--89, 723--30; cf. Einar Ól. Sveinsson 1953, 116 n. 1). *Hofsbók*, however, contains just eight marginal references to *Gullskinna; one does occur in chapter 86 but is not informative for the present discussion. Still, if Jón was right, then the agreement of any two of AM 470 4to, AM 136 fol and AM 137 fol should be enough to confirm the reading of *Gullskinna. However, Már Jónsson provided clear evidence that AM 137 fol is a direct copy of AM 136 fol, and not an independent witness to *Gullskinna (1996). Our findings are in line with Már's. Our Pars--Drawgram analysis puts AM 470 4to near the top of the *Gullskinna branch, but finds AM 136 and 137 fol to be closely related, relatively innovative texts. There are seventeen occasions where AM 470 4to, AM 136 fol and AM 137 fol offer divergent readings (spreadsheet columns N, S, T, U, AD, AH, AL, AP, AQ, BB, BJ, CB, CD, CY, CZ, DD, DL). Whenever AM 136 fol differs from AM 470 4to, AM 137 fol agrees with AM 136 fol (12 occasions). AM 136 fol and AM 470 4to agree with each other over AM 137 fol 5 times. But

AM 470 4to and AM 137 fol never agree with each other against AM 136 fol. Thus rather than being an independent copy of *Gullskinna, AM 137 fol is indeed a somewhat innovative copy of AM 136 fol.

On almost all of the seventeen occasions when there is a disagreement between AM 136 fol and AM 470 4to, AM 470 4to agrees with the much older fragment AM 162 b fol θ , suggesting that it is the more conservative representative of *Gullskinna. The exceptions to this are:

| Spreadsheet column | T | AL | BJ |
|------------------------|---------|--------------------|-------------------------------|
| AM 162 b fol θ | mærhæfi | sem fundurinn var | og skaut spjóti í gegnum hann |
| AM 136 fol | Munæffe | sem fundurinn varð | og skaut spjóti í gegnum hann |
| AM 470 4to (Hvammabók) | Minæfi | er fundurinn varð | og skaut spjóti í gegnum Jarl |

In the case of column T, no manuscript agrees with θ , so the column is not diagnostic. In the case of AL and BJ, AM 470 4to does appear to be innovative. It is thus clear that of the manuscripts on Jón Þorkelsson's list we have only two substantial witnesses to *Gullskinna, of which AM 470 4to is extremely faithful, but AM 136 fol occasionally offers a more conservative reading.

AM 136 fol has no descendants apart from 137 fol. Since AM 470 4to is so similar to *Gullskinna, however, it is hard to judge whether other similar manuscripts are copies of *Gullskinna itself and how far they are copies of AM 470 4to: Már Jónsson had the same problem, the main difference between his quandry and ours being that he was aware of only five manuscripts which might be direct copies of *Gullskinna (AM 136 fol, AM 469 4to, AM 470 4to, AM 555a 4to and AM 555c 4to), whereas, including reconstructed lost manuscripts, we have identified twelve. Of the other *Gullskinna-type manuscripts, there is great variation in column T, with all the readings listed above and more appearing. It seems clear that scribes often introduced other readings here, whether from misreadings, other manuscripts, memories of hearing other versions, their own geographical knowledge, or invention. The agreement of AM 162 b fol θ and AM 136 fol on *sem* in column AL would suggest that this was the reading of *Gullskinna. Almost all the other *Gullskinna descendants have *er* so this could suggest that they were copied from AM 470 4to. On the other hand, the other X-class manuscripts have *er*, so it is just as likely that AM 162 b fol θ and AM 136 fol independently innovated *sem* here and that *Gullskinna read *er*. This leaves only column BJ as a basis for choosing between AM 470 4to and *Gullskinna as an exemplar of other manuscripts; both variants are found. Common innovation is quite likely, as the abbreviated forms of *hann* and *jarl* look quite similar (though AM 470 4to writes the word out in full, clearly, so a copyist of that manuscript should not have had difficulty). AM 470 4to was at some point not too long after its copying thoroughly corrected with reference to Kálfalækjarbók (AM 133 fol), to the extent that it would take an effort to copy it without incorporating Kálfalækjarbók readings, but none of the other *Gullskinna-type manuscripts exhibit this. Further research into the manuscripts which we have identified as witnesses to *Gullskinna would resolve these questions. For now, we have assumed that AM 470 4to has no descendants and that *Gullskinna had many, many of which seem to be direct

descendants (but might, given a larger sample, resolve into clearer groupings).

Other work on Gullskinna manuscripts has suggested the following filiations. Again, unless noted, the source for quotations and facts below is the online catalogue of Icelandic manuscripts, handrit.is.

| call no | filiation according to secondary literature | agreed? |
|-------------------------|--|---------|
| AM 469 4to | Jóón Þorkelsson found that 'Texten er af Gullskinna-klassen og ligner snarest Hvammsbók' (AM 470 4to; 1875--89, 737). AM 469 4to has numerous unique readings, but where AM 470 4to seems to diverge from *Gullskinna, AM 469 4to seems not to. It therefore seems to be an independent copy of *Gullskinna. | N |
| Urðabók (ÍB 270 4to) | Mainly identical with AM 137 fol (Jón Þorkelsson 1875--89, 753). AM 137 fol has numerous unique readings not shared by ÍB 270 4to, while ÍB 270 4to shares various readings with ÍB 261 4to, indicating that these two have a common ancestor, apparently several generations later than *Gullskinna. | N |
| AM 555a 4to | Because it was copied by the son of Ketill Jörundarson, who copied Hvammsbók (AM 470 4to), Jón Þorkelsson supposed that the text 'synes i alt væsentligt at stemme overens med den i Hvammsbók' ('it seems in all significant respects to match that in Hvammsbók'; 1875--89, 740); Már Jónsson was inclined to agree, while admitting that 'frávik eru hverfandi' ('variation is negligible'). This would seem plausible, except that in Column BJ, AM 555a 4to has the more conservative <i>hann</i> instead of AM 470 4to's <i>Jarl</i> . We have therefore filiated AM 555a 4to as an independent witness to *Gullskinna, while recognising that more work is necessary here. | (N) |
| NKS 1219 fol | Jón Þorkelsson suggested that 'texten følger nøie den i 137. fol og er altså af Gullskinnaklassen' ('the text tends to follow that in AM 137 fol and is also of the Gullskinna-class'; 1875--89, 745). We agree with this broad claim, but have provided a more specific filiation. | (Y) |
| NKS 1778 4to | Jón Þorkelsson thought this belonged to the same branch as ÍB 261 4to. We agree, but have refined the filiation. | (Y) |

Reconstructing *Gullskinna proves important in two ways: for understanding the early transmission of *Njáls saga* and for understanding its post-medieval circulation. *Gullskinna and θ emerge as witnesses to a lost, relatively innovative, but early version of *Njáls saga*, which on the evidence of chapter 86 tended to shorten the saga, making for a slightly brisker and less detailed narrative. This offers a counterweight to Einar Ólafur Sveinsson's conclusion that 'the

author of *Njálssaga* is no doubt one of the greatest masters of Icelandic prose style, of all ages, and certainly the scribes felt his excellence. Their way of treating the text seems to show more respect for it than is generally the case with our scribes in those times' (1953, 16). True though this may generally have been, someone begged to differ. This lost parent of θ and *Gullskinna seems also to have been a witness to the lost archetype of our *Njáls saga* manuscripts independent of any surviving. The precise placement of this lost manuscript in the stemma is difficult. Our Pars–Drawgram analysis placed it as a descendant of *V, albeit no doubt partly because of the confusion caused by AM 465 4to and its conflated *Gullskinna–Möðruvallabók text. Einar Ólafur Sveinsson tentatively filiated θ as a descendant of *X, in which case the parent of θ and *Gullskinna would of course also be from *X. On the evidence of chapter 86 alone, it is difficult filiate this version, as its innovative character leaves few clear bases for comparison with other manuscripts—a problem which Einar Ólafur also had with the relatively short fragment θ . For now we have tentatively followed Einar Ólafur in making the shared ancestor of θ and *Gullskinna a descendant of *X (thus labelling it *x4), but more work is required here.

Whatever the precise filiation of *Gullskinna, there is no question that, directly or indirectly, *Gullskinna is the ancestor of most of the surviving *Njáls saga* manuscripts which were copied and circulated in the seventeenth and, even more so, the eighteenth centuries. Investigating the reasons for this in detail would be very worthwhile, and would probably help us to understand similar phenomena in the transmission of other Icelandic sagas, but this work is beyond our present scope. Either way, far from being dominated by the Reykjabók and Möðruvallabók versions which tend to define the *Njáls saga* familiar to us from modern editions, the *Njáls saga* known to early modern Icelanders was overwhelmingly the innovative and comparatively brisk *Gullskinna version.

The *Gullskinna text was, however, subject to a high rate of conflation with other manuscript versions. This suggests that seventeenth-century copyists tended to find its shortened version deficient. Thus the *Gullskinna text of Hvammsbók (AM 470 4to) was carefully corrected by Hvammsbók's scribe Ketill Jörundarson with reference to Kálfalækjarbók, which Ketill seems clearly to have viewed as higher-status (AM 133 fol; Jón Þorkelsson 1875–89, 739; Einar Ól. Sveinsson 1953, 7); AM 465 4to silently conflates *Gullskinna's text with Möðruvallabók's; and, as discussed in Section 3.3 above, NKS 1220 fol and Lbs 3505 4to both derive from a manuscript which conflated a *Gullskinna text with the text in AM 396 fol (or a close relative).

4. Evaluation and conclusion

Our final stemma is rendered as a conventional dendrogram at http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.svg and in HTML format, incorporating all the textual evidence, at http://alarichall.org.uk/njala_sandpit/njala_stemma.php. This study represents a major step forward in our understanding of the manuscript transmission of *Njáls saga*: it largely confirms the findings of past scholarship, while making a few small corrections; but it filiates for the first time all but six of the saga's post-medieval manuscripts. It shows that whereas current editions of *Njáls saga* are usually based primarily on Reykjabók and

Möðruvallabók, the recension of the saga known to most Icelanders in the seventeenth and, overwhelmingly, in the eighteenth centuries derived from the lost medieval manuscript *Gullskinna. When we study the vibrant literary responses to the saga in the poetry of eighteenth-century Icelandic *literati* like the Svarfaðardalur coterie of Magnús Einarsson (1734--94), who according to Andrew Wawn (2012, 10) copied Urðabók (ÍB 270 4to) for his friend Jón bóndi Sigurðsson of Urðir; Magnús's friend Sveinn Sölvason (1722--82); or séra Gunnar Pálsson (1714--91), we are probably studying responses to the *Gullskinna recension of *Njáls saga*.

Further research on the *Gullskinna branch of *Njáls saga* would therefore be worthwhile. At the moment we have had to filiate a large number of very similar manuscripts as direct descendants of *Gullskinna. However, larger samples would presumably reveal shared innovations which would enable us to identify some of these manuscripts as exemplars of the others. Even so, with at least three and probably more direct copies (AM 136 fol, AM 470 4to, and AM 134 fol), *Gullskinna itself clearly has a special prominence in the early modern copying of Icelandic manuscripts. Further research would help to establish why. It could help us to guess how long *Gullskinna itself remained in circulation. It is at least possible that the widespread copying of *Gullskinna has some relationship to the loss of the medieval manuscript: maybe others survived for Árni Magnússon and other collectors to find precisely because they were out of circulation. This might in turn help us to understand some of the non-random factors which have defined which medieval manuscripts have come into our hands and which have not.

Our c. 400-word sample of chapter 86 proved an adequate basis for establishing a stemma, except insofar as many *Njáls saga* manuscripts switch exemplar part way through, meaning that other samples are necessary to capture such switches. Because the copying of *Njáls saga* has been very conservative, unlike with the romance-saga studied by Hall and Parsons (2013), the 400-word sample did not give us as fine-grained resolution as we might have wished. It is too seldom emphasised that all stemmas are contingent: stemmatology is inherently a probabilistic undertaking, and ours is no exception. Our small sample will also have increased the likelihood of mistakenly finding manuscripts to be in a parent-child relationship where fuller sampling could reveal variants showing that they are both descended from a lost common ancestor (cf. Hall--Parsons 2013, §§48--50). However, the study has still taken our understanding of the transmission of *Njáls saga* to a new level and provided a sound basis for targeted future research. Particular areas for future research that we have identified are:

- Studying the fragments and MSS not covered here.
- Working out more precisely the relationships of the *Gullskinna-class manuscripts.
 - Exploring the precise relationship of Bæjarbók to its two exemplars.
 - Establishing the precise relationship of Reykjabók (AM 468 4to) to its identical copies AM 467 4to and Landakotsbók.
 - Checking the sources of other chapters of Hofsbók (AM 134 fol).
 - Checking the sources of other chapters of Thott 984 fol III.
 - If Einar Ólafur was right that the fragments Lbs fragment 2, JS fragment 4, AM 921 I 4to, and Þjóðminjasafn I are descended from the parent of Oddabók, it might also

be the case that this is true for AM 396 fol (Melanesbók/Lambavatnsbók), which we have taken as a copy of Oddabók. AM 396 fol could, therefore, be an important witness to a lost medieval manuscript. A new scrutiny of the *V branch of the stemma, using extra sampling including the fragments, would be valuable.

- Exploring the internal filiations of the immediate descendants of *Gullskinna.

Though it has its limitations, our use of sampling has made manageable a large and unwieldy task and enabled transparent publishing of our data, enabling subsequent researchers to build on our work. This has further been supported by the use of crowdsourcing-type methods, which meant that a large part of the task was achieved swiftly, and increased the motivation for the lead authors to complete the project. The fact that many of us were relatively inexperienced students of Icelandic manuscripts did have drawbacks: at various points in the checking of the initial Pars--Drawgram stemmas, we revisited problematic manuscripts to find that the problems lay in inaccurate transcriptions of texts or encoding of variants. (Nor, should it be said, were the transcriptions of the most experienced participants always free of problems!) In retrospect, we might have aimed for diplomatic rather than normalised transcriptions. In particular, the extremely varied forms taken by place-names in the passage are hard to normalise reliably, and the manuscript forms are of especial interest in because there is a good *a priori* case that scribes would be more likely to attempt to copy unfamiliar proper nouns *literatim*, making and passing on errors of the kind focused on in Lachmannian stemmatics, rather than freely recomposing, as saga-scribes often do (cf. McDonald Werronen 2013, 26)---though in practice our experience was that the forms of place-names were liable to show variation and common innovation outside the lines of the stemma as suggested by the rest of the data. However, the overall experience of a crowdsourcing-type approach has been very positive, and we hope to build on this experience not only in future Arnarnagnaean summerschools but to experiment with genuinely crowdsourced data.

5. Appendix: data

It is integral to the stemmatic approach underlying this paper that processes of analysis should as far as possible be transparent, replicable, and provide data which can be used by other researchers in future (cf. Hall--Parsons 2012, section 1.2). Here's then, we provide all our data and source files.

Our final stemma of ch. 86: http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.dot;
http://alarichall.org.uk/njala_sandpit/stemma_final_kap_86.svg;
http://alarichall.org.uk/njala_sandpit/njala_stemma.php

Visualisations of the stemma of *Njáls saga* established by Einar Ól. Sveinsson 1953:

- the whole stemma, concise format:
http://alarichall.org.uk/njala_sandpit/stemma_EOS.dot;
http://alarichall.org.uk/njala_sandpit/stemma_EOS.svg
- the whole stemma, detailed format:
http://alarichall.org.uk/njala_sandpit/stemma_EOS_detailed.dot;
http://alarichall.org.uk/njala_sandpit/stemma_EOS_detailed.svg

- manuscripts witnessing chapter 86 only:
http://alarichall.org.uk/njala_sandpit/stemma_EOS_kap_86.dot;
http://alarichall.org.uk/njala_sandpit/stemma_EOS_kap_86.svg

Visualisations of the stemma of *Njáls saga* established by Slay 1960:

http://alarichall.org.uk/njala_sandpit/stemma_slay_1960.dot;
http://alarichall.org.uk/njala_sandpit/stemma_slay_1960.svg

Spreadsheet of aligned manuscript readings:

http://alarichall.org.uk/njala_sandpit/final_spreadsheet.ods;
http://alarichall.org.uk/njala_sandpit/final_spreadsheet.pdf

Map of manuscript localisations: http://alarichall.org.uk/njala_sandpit/njala_MSS.kmz

Other illustrations used in the article:

- Stemmas produced by Pars--Drawgram analysis:
http://alarichall.org.uk/njala_sandpit/plotfile.png
- The descendants of *y1: http://alarichall.org.uk/njala_sandpit/stemma_y1.dot;
http://alarichall.org.uk/njala_sandpit/stemma_y1.svg
- Excerpt of the stemma: http://alarichall.org.uk/njala_sandpit/stemma_excerpt.dot;
http://alarichall.org.uk/njala_sandpit/stemma_excerpt.svg

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