

# Early Irish Law, Annals, and Computer Science

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While recent advances in computer technology have enabled much in the way of data analysis, these advances have yet to make their way into early Irish studies. One field in particular which would benefit from computational methods is the study of early Irish law. Perhaps the most problematic aspect of early Irish law is the lack of real world case law in which legally stipulated acts and outcomes are clearly described.<sup>1</sup> Instead, the law texts are silent or rely upon mythological leading cases to verify the connections between theory and practice we must turn to the early annals and chronicles, such as the *Annals of Ulster*. The numerical information contained therein are particularly amenable to computational methods. This article seeks to use evidence gained from the various early Irish annal sources in an attempt to validate the real world validity of early Irish legal sanctions. Crucial to this investigation is entry for the year 893 in the *Annals of Ulster* in which a fight is detailed between Ulstermen and the *Cenél Eógain* in the cathedral of Armagh on Whitsunday – a fight incurring a penalty of thirty-seven *cumals* of fines and a number of the combatants are executed. What I propose to do is establish the number of people who died during the fighting by feeding the rules of early Irish law into a computer program to which will then work backwards from the fine to estimate the number of people who died that day. If the numbers are feasible it will help determine whether early Irish law as preserved in the law tracts was indeed a functioning legal system at the time of the entry. Independent verification of the result can be obtained by scrutiny of the methodology described in the next section and scrutiny of the provided computer program for any defects.

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<sup>1</sup>Fergus Kelly, *A Guide to Early Irish Law* (Dublin: Dublin Institute for Advanced Studies, 1988), pp. 238–240.

# 1 Methodology

As with the old adage, ‘garbage in; garbage out’, the method by which the numbers used in the analysis are generated is of the utmost importance. A few assumptions must be made about the source material which have a large impact upon the value of the current endeavour. The first assumption is that the annals as they describe the fight are *accurate*. The normal methodology among those who study the annals suggests that if the entry appears in more than one of the extant annals, it is likely to be accurate.<sup>2</sup> In this instance, the altercation appears both in the *Annals of Ulster* but also, for the same year, in the *Chronicon Scottorum*.

## **Annals of Ulster 893.2**

Cumusc a Cengcigis i n-Ard Macha eter Cenel n-Eogain & Ultu du i torcradur ili.

A disturbance in Ard Macha at Whitsun between the Cenél Eógain and the Ulaid, in which many fell.<sup>3</sup>

## **Chronicon Scotorum 893.2**

Cumusc cengigis a n-Árd Macha etir Cinel nEógain & Ulltu dú a ttor-chair sochaidhe .i. eidir Aidéid mac Laigne & Flaithbertach mac Murchadha cor sgar Mael Brigde. Ríar Maoilbrigde iar sin et enigh Padraic ó cuigedaibh hErend la gabail a n-aitire tricha secht ccumal et cethrar hi crocaib ó Ulltaibh cenmothád cealla et manchu.

A disturbance in Ard Macha at Whitsun 27 May between the Cenél Eógain and the Ulaid, in which many fell, i.e. between Aitid son of Laigne and Flaithbertach son of Murchad, until Mael Brigte separated them. Mael Brigte thereafter received his own award and *compensation for the insult to Pátraic’s* honour from the provinces of Ireland, as well as taking their hostages, thirty-seven cumals, and four of the Ulaid hanged, not counting churches and monastic tenants.<sup>4</sup>

The second assumption is that early Irish law has enough material to allow a computational model to be accurately constructed. This assumption is more difficult to accept as the accuracy of early Irish law is still disputed.<sup>5</sup> For example, Prof. Kelly

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<sup>2</sup>insert footnote here

<sup>3</sup>insert footnote here

<sup>4</sup>insert footnote here

<sup>5</sup>Fergus Kelly, *A Guide to Early Irish Law* (Dublin: Dublin Institute for Advanced Studies, 1988), pp. 238–240

suggests that the fine for murder is not possible to reconstruct based on the law tracts alone.<sup>6</sup> While this seems reasonable, it should not block attempts to correlate and give analysis on the basis of the evidence currently known. For this analyses, the fines given in *Bretha Crólige* will suffice as it gives clear honour-prices for each grade of individual.<sup>7</sup> The third assumption depends upon the other two: the numbers generated by such an analysis are indeed reliable indicators of how the fine was calculated in the first instance.

A fourth assumption and one that directly effects the outcome of the numbers involved is that no kings were killed in the altercation. One of the reasons for this is that no kings are listed as dead even though a ‘great many’ died there. Another reason is that it would heavily weight the numbers as a king is worth seven *cumal*. The annals in general had a bias towards ecclesiastical and royal events such as inauguration and deaths either in battle or otherwise.<sup>8</sup> If a king had died at this altercation, the balance of probabilities argues that his death would have been noted in the annal entries.

A final assumption is that *Cáin Adomnan* was not in force in the situation.<sup>9</sup> As with kings, women were valued, under this law, at seven *cumal* if they were killed. As this happened in a church, it is simple to assume that women were in attendance at a church function. As scholars are still rather unsure as to the disposition of persons in a medieval Irish church, it may have been that the women were sequestered from the men during or before the service (the entry is unclear as to exactly when the altercation occurred).<sup>10</sup>

Having detailed the assumptions made of the information presented to the computer program, the computational methods themselves must be defined. If the assumptions are deemed acceptable but the theoretical underpinnings of the computation are flawed, this exercise will be in vain. The type of calculation required here is well-known in computer science. Stated informally: given a target amount, how does one place all the material into the slots provided? In other words, if one was to think of each class of individual as a differently sized bucket and the amount of

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<sup>6</sup>Fergus Kelly, *A Guide to Early Irish Law* (Dublin: Dublin Institute for Advanced Studies, 1988), pp. 125–126.

<sup>7</sup>D. A. Binchy, ‘Bretha Crólige’, *Ériu* 12 (1938).

<sup>8</sup>insert footnote here

<sup>9</sup>See Pádraig P. Ó Néill and David N. Dumville, eds., *Cáin Adomnáin and Canones Adomnani* (Cambridge: Department of Anglo-Saxon, Norse, and Celtic, University of Cambridge, 2003); Thomas O’Laoughlin, ed., *Adomnán at Birr, 697 AD* (Dublin: Four Courts Press, 2001); Máirí Ní Dhonnchadha, ‘The Guarantor List of Cáin Adomnán, 697’, *Peritia: Journal of the Medieval Academy of Ireland* 1 (1982).

<sup>10</sup>insert footnote here

the fine given as the amount of water to be placed in each bucket, what combinations of buckets would hold the required amount of water? Either way one thinks about the problem, there is no single correct answer to the question, which, with its implications, will be explored anon. The problem to be solved is a standard method known as the 'bucket' or 'bin' sort which dates back to the days of card-punched computer programs. This method offers two solutions. First, the recursive method in which a function is defined in terms of itself. While this produces shorter and more concise computer code, it can be slow. Second, the iterative method by which the problem is solved involves a series of looping constructs. Iteration is generally faster than recursion unless the programming environment supports tail recursion or transforming recursive solutions into iterative solutions during the code compilation process. The formal implications of these solutions will probably not effect the outcome of the computation itself in this case as the amount of data input is relatively small.

The format in which data is inputted and the presentation method of the results must also be considered before proceeding with the remainder of the article. The implications of the sorting algorithm described above are that there is no one correct numerical answer instead a range of answers will be provided. To present the data in the more easily understood form, this will be listed in a table from lowest number of deaths to the highest number of deaths, from here, a more detailed analysis of the data will be attempted.

## 2 Description of Algorithm Used

As the procedure to process the data is based on the bucket or bin sort, it is relatively straight forward. Each of the class of individual will be assigned their respective fines from *Bretha Crólige*. This number is then multiplied by the number of people estimated to have been killed, which is bounded by the maximum number of people for each class which can divide evenly into thirty-seven (rounded up in case of fractional results). For example, the maximum number of *Aire Ard* by which thirty-seven can be divided is four, which is in fact forty-two due to the rounding policy.

Table 1: Number of Dead Related by Status

Aire Ard (10.5)	Aire Tuise (7)	Bo Aire (3)	Flesach (2)	Total
2	2	0	1	5
0	5	0	1	6
2	1	3	0	6
0	4	3	0	7
2	1	1	3	7
0	4	1	3	8
2	0	4	2	8
0	3	4	2	9
2	0	2	5	9
0	2	7	1	10
0	3	2	5	10
2	0	0	8	10
0	1	10	0	11
0	2	5	4	11
0	3	0	8	11
0	1	8	3	12
0	2	3	7	12
0	0	11	2	13
0	1	6	6	13
0	2	1	10	13
0	0	9	5	14
0	1	4	9	14
0	0	7	8	15
0	1	2	12	15
0	0	5	11	16
0	1	0	15	16
0	0	3	14	17
0	0	1	17	18

### 3 Discussion and Data Analysis

As the table shows and intuition would suggest, the lower the amount of a fine for a given class would weight the numbers toward that particular class. Thus, at the high end of the table, eighteen people would have been killed with seventeen *Flesach* and one *Bo aire*. At the other extreme, five people would have died with two *Aire Ard*, two *Aire Tuise*, and one *Flesach*.

While the results of the table are correct as per the methodology described earlier, this raises a number of questions. First, as the entry in the *Annals of Ulster* describe the number of people killed as ‘many’, how many is ‘many’? Second, even if the table describes some number that can be considered ‘many’, what degree of accuracy does this table attain? Third and finally, if the other questions can be answered in the affirmative, what does this mean in terms of other numerical values given in the annals and their usefulness in analysing other parts of early Irish law?

As the answers to the second and third questions depend on the resolution of the first, we will begin by exploring what ‘many’ may have meant in an early Irish context. The annals are replete with accounts of hostilities resulting in the deaths of many thousands. As these deaths occur during annual *slugad* ‘hosting’, which are required of kings in early Irish law,<sup>11</sup> the deaths are not illegal and thus do not engage the apparatus of the law. The deaths must be identifiably illegal for our method to be applied successfully. Within the early annals, there are relatively few of these instances. Even if the deaths occurring from hosting are included in the analysis, the interpretation is fraught with difficulty. For many of the early annal entries, the numbers are suspiciously similar in number. In the Chronicle of Ireland, for example, recreated by Prof. Thomas Charles-Edwards,<sup>12</sup> there are ten examples of battle statistics in the years: 764, 848, 850, 869, 886, 896, 910. The majority of these references occur in the ninth-century and within these, the year 848 is unique with four entries of 700, 1200, 1200, and 500 deaths respectively. From this information, it would seem that the Irish annalist was not in possession of the actual number of dead from any particular battle and many of the entries in the Chronicle of Ireland only refer to the kings or notable nobles who die in any one battle and the victor of the battle. In addition, it is highly doubtful that the Irish spent time counting dead enemies in the same way that, for example, the ancient Egyptians did.<sup>13</sup> Thus,

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<sup>11</sup>Fergus Kelly, *A Guide to Early Irish Law* (Dublin: Dublin Institute for Advanced Studies, 1988), p. 19.

<sup>12</sup>insert footnote here

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many of the numbers given are rounded or could be fabrications or synonyms for ‘many’. As much of the evidence is unreliable at best and fabrications at worst, it is unusable.

This brings us to the table itself. In the modern sense, the low end of the table above, i. e. 5 deaths, could be considered mass murder. Given the fact that much violence is recorded both in the annals and in the saga literature, could five murders be justified? Given at this point in the history of Ireland, the differing sept and vassal peoples of the Uí Néill were said to be driving the Ulad into the sea,<sup>14</sup> the tensions over this could have been explosive. With more of their own countrymen fleeing over the sea to what would become Scotland, those left behind would be under increasing pressure from the expanding Uí Néill.<sup>15</sup> Having the two in the same church was probably not an entirely stable situation. However, the annal entry is vague about this aspect of the encounter. Five people dying, especially of the social standing indicated by *Breatha Crólige*, may have caused more commentary on the episode. On the other hand, the annalists are, as a breed, tight-lipped; and only those of the very highest social standing obtain an entry in the annals.<sup>16</sup> On the high end of the table, 18 deaths, while monstrous and horrific in the eyes of modern society, could plausibly be given the casual reference as ‘many’. Again, as the eighteen are of relatively low social standing, the annalists are far less likely to give any more detail about their demise.

This returns us to the second question. Namely, the accuracy of the table in relation to early Irish law. As Prof. Kelly suggests, discovering the rules and regulations which govern murder in early Irish law are difficult to determine.<sup>17</sup> In the methodology outlined above, much of this complexity is deferred so that the methods could be clearly demonstrated. This does not mean that inherent difficulties do not exist. The uncertainty in the application of early Irish law in these circumstances obscures the results presented here. The most significant difficulty is the precision of the results. There is a difference of thirteen between the lowest and highest number of dead estimated. The spread between them is significant enough to cause us to pause when interpreting the evidence. If the difference were smaller, for example, between one and five, the accuracy of the entry would seem more reliable. The reason for such a large spread could be a consequence of the simplified methodology used in the construction of the model.

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As for the third question posed above, the other two questions were generally answered in the negative. The third question depended heavily upon the other two questions being answered in the positive. Thus, the implications for the annals and early Irish law are rather unclear. Much of this is due to the fact that early Irish law has no case law relating to it from before the sixteenth century.<sup>18</sup> In fact, Kathrine Simms uses this and other evidence for the viability of troop quartering in Early Modern Ireland.<sup>19</sup> Nerys Patterson uses the same evidence and the Pseudo-Historical Prologue to the *Senchas Mar* to attempt to determine both the viability of early Irish law in the later period and the attempts of the later native lawyers to argue their case in the face of the spread of English common law in Ireland.<sup>20</sup> Both positions take their evidence from a much more well documented era in Irish history. For the early period, as internal evidence from early Irish law is lacking, much depends on the evidence from the annals. From annalistic sources a number of things can be taken: first, the annalists are more interested in the promulgation of Church initiated and kingly associated *cáin*, which are normally given royal assent at inauguration ceremonies;<sup>21</sup> second, while the creation of the *Senchas Mar* is noted in the annals, no other non-*cáin* related law is recorded.<sup>22</sup> This circumstance is curious as all early Irish law has connections to the monastery schools and other Church related education centres.<sup>23</sup> It would seem logical that early Irish law would have more interest to the annalists than is related therein. One possible explanation is that the annalists took early Irish law for granted. Thus, only changes to the law itself was worth noting in the annals and, as these changes were often connected to kingly inauguration, their entrance into the annals was guaranteed. That these changes to the law were worth the notice of the annalists suggests that these regulations were somehow politically important even if they were only sporadically employed such that evidence of their use does not come down to us today.

However, there are a few suggestive entries in the Chronicle of Ireland other than the one in focus in this article. For instance, in the year 746, the Chronicle of Ireland states that: ‘A violation of sanctuary at Domnach Pátraic; six *cimbidi* were hanged.’<sup>24</sup> There are a few others like this which hint at the machinery of legal justice, in whatever form it took in early Ireland, moving. The main problem is two

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fold. First, there is no case law which would help define the law in early Ireland. Second, it would seem that the annalists who worked on the Chronicle of Ireland were more interested in cross-boarder disputes, wars, and, as shown in the quote above, the affairs of the church. This is reasonable for a chronicle which was first started on the island of Iona and was kept by the monasteries later in its existence.<sup>25</sup> Internal strife or internal legal affairs were probably not important enough for the annalist to include or he would never have heard of these kinds of events from his own sources of information. Even though the annalists did not record the doings of early Irish judges and lawyers, it does not follow that the law was not used at all as this would be argumentation *ex silentio*. Given the above arguments, the question is still open.

## 4 Conclusion

The purpose of this paper was to apply methods of Computer Science to early Irish law. The only means to do that, because of the dearth of case law material, was to turn to a reliable means of obtaining legal outcomes. The information taken from the Chronicle of Ireland in 893 was considered the only such source. While several assumptions are made about the methods used in this paper, the results are generally in line with expectations. The spread of deaths which was calculated from *Bretha Crólige* do seem to fit the description of ‘many’ from the original annal entry. In addition, the method used to generate these numbers is as interesting as the numbers themselves. The use of computer science demonstrates that computers have a place when used judiciously in the study of early Irish law and other early Irish literature. While the methods used here did not completely or definitively answer the question as to the historic use of early Irish law, this is only a first attempt at the problem which calls for further research.

## 5 Code

```
#!/usr/bin/perl
```

```
use v5.8.8;  
use strict;  
use warnings;
```

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<sup>25</sup>insert footnote here

```

#the cumal amount of the fine
my $amount = 37;

#the dire fine for each grade as in Bretha Crolige
my $aireArd = 10.5;
my $aireTuise = 7;
my $boAire = 3;
my $flesach = 2;

#an array to store the results
my @results;

#the variables w,x,y,and z are computed based on the
#maximum number of times their fine amount will divide
#into 37. If there is a remainder, it is rounded to the
#next whole number.
for(my $w = 0; $w <= 4; $w++) {
    for(my $x = 0; $x <= 6; $x++) {
        for(my $y = 0; $y <= 13; $y++) {
            for(my $z = 0; $z <= 19; $z++) {
                if((( $w * $aireArd) +
                    ($x * $aireTuise) +
                    ($y * $boAire) +
                    ($z * $flesach)) == $amount) {
                    my $total = $w + $x + $y + $z;
                    push @results, [$w, $x, $y, $z, $total];
                }
            }
        }
    }
}

print "results\n";
print "aire_ard\taire_tuise\tbo_aire\tflesach\ntotal\n";

```

```

@results = sort {$a->[4] <=> $b->[4]} @results;

#print the resulting calculation
foreach my $result (@results) {
    print $result->[0] . "\t";
    print $result->[1] . "\t";
    print $result->[2] . "\t";
    print $result->[3] . "\t";
    print $result->[4] . "\t";
    print "\n";
}

```

## References

- Binchy, D. A., ‘Bretha Crólige’, *Ériu* 12 (1938), pp. 1–77.
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