The autosomal matches of 7 Lousada relatives

Summary

A simple analysis of autosomal DNA matches has been done, restricted to a sample of 7 probable Lousada relatives. Our prior understanding of how these relatives inter-connect derives from much research, data and logic, and studies such as this can augment the dataset and thereby enrich the hypotheses; the outcome is that traces of core DNA from the 16th century emerge, amid the statistical noise resulting from 11 or so generations and the loss of much of the autosomal DNA.

Discussion

The 7 relatives had their DNA uploaded to GEDmatch and a Multi-Kit Analysis done, with each of the 7 being placed in turn in the Kit 1 position. As few of the surviving matches exceeded the 7cM standard threshold, we chose the minimum setting of 3cM, which of course led to an inherent impairment of quality in the reported data. Such a small fragment size is necessary because over 10 generations, the autosomal DNA is chopped up into about 1000 3cM pieces on average.

A total of 133 matches was found, but of course this total is barely distinguishable from what would have been found with 7 randomly selected individuals from European populations with exposure to modern and colonial economic influences (in fact we performed such a parallel random study – see Chart 3). Review of the 133 matches showed there was no overlap with other pair-matches in 76 cases. The cases where one match overlapped others is discussed below. The frequency with which each person appeared in one of the 133 matches was 33, 36, 37, 38, 38, 40 and 44 times – roughly equal but of course with some scatter.

A match overlapped with other matches in the 133 as follows, with the distribution of contributors to multiple matches being 11, 15, 16, 17, 17, 18 and 20 (again roughly equal but with some scatter):

- In 9 cases there were 3 people - one common to each match. Of course, the other 2 people did not match, by definition. This means that these 2 people had matches with either half-identical region of the common person in the location of the match, and therefore if one match was a Lousada match the other wasn't. Therefore, in all of these 9 cases, there was at least one non-Lousada match, and possibly two, so possibly only a small number of Lousada matches are manifested in this sample.
- The remaining 14 matches all involving 4 or more people are shown in Chart 1.
- In 6 of the cases, there were 4 separate individuals, with no cross-matching between the 2 pair-matches. From this we cannot tell whether there were any Lousada matches – even though a coincidence of 4 people looks interesting at first sight. We cannot prove that this coincidence is more than random.
- In the remaining 8 cases are 5 quadruple matches where there are multiple individual matches, a quintuple match and 2 sextuple matches.

Before discussing the 2 matches of real interest, our observations on the remaining 6 cases are that:

- In one of the sextuple matches (21), there are no matches except within each original pair. Despite its promising appearance, this could be a random coincidence of 3 non-Lousada matches.
- In the quintuple match (22a), we cannot prove any Lousada matches – MD may be showing matches with both of his (Lousada and non-Lousada) half-identical regions in a weak triple overlapping an unconnected match.
- In each of the 4 remaining quadruple matches (7c, 13a, 18a, 18b), there are 2 linked pairs of matches – but even with our genealogical framework we cannot see a Lousada match here.

The matches on chromosomes 2 & 8 are of some interest as follows:

- In the remaining quadruple match (2a), there is a 3-way match (Julian, Ed and Jeannine) and a triple match of 3 people (Julian, Ed and Scott's wife) with Jeannine. But of course one person can only have 2 independent matches at the one site. Thus there are further matches which do not show up even at the 3cM segment threshold level we have used. Whichever these other matches are it seems obvious we have a probable Lousada match here.
- In the remaining sextuple match (8a), one person (Scott's wife) matches 3 others (Julian, Ed and MD), one of whom (Ed) matches the 5th person (Jeannine), whom the 6th person (JG) also matches. Again one person cannot independently match 3 people. Examination of the 3 matches (see Chart 2 below) suggests that one pair (Julian and Ed) is close to showing a match. If this is correct then all 6 people seem to have the same Lousada match.

Conclusion

Our 7 by 7 matching of relatives slightly suppresses the randomness expected from random 7 by 7 matching (see Chart 3 below), and with the help of our genealogical framework we have found 2 probable historic Lousada DNA relics as follows:

- Chromosome 2 (218782054 - 219513782) a 1.3cM segment
- Chromosome 8 (52269392 – 54277280) a 2.7cM segment

The age displayed in these cases is roughly 11 generations, using the rule of thumb that in each generation, DNA segment size is halved, so that in 11 generations the genome of about 4000cM is reduced to 2000 pieces! The missing segment matches predicted by our discussion will be less than 3cM, but cannot reduce the above numbers significantly for the reason just given. All 6 people in these matches are about 11 generations from a common Lousada ancestor. These probable Lousada matches reflect the connections we have made via the Barrow, Fischl & Henrique de Lousada hypotheses for without these hypotheses we could not connect the Barrows to the Lousadas, the Luzarders to the Lousadas, and Scott's wife to the Barrows.

Chart 1

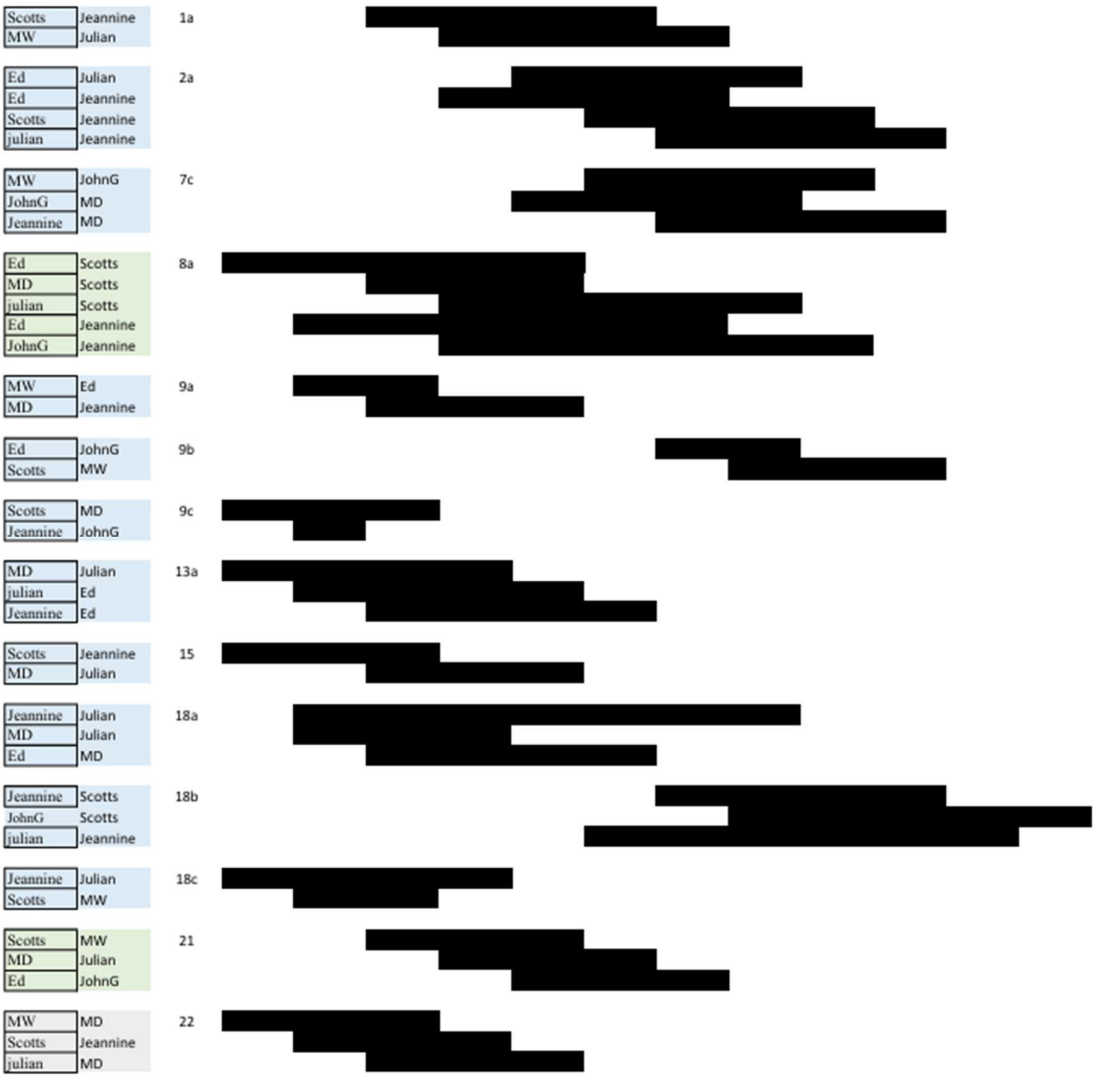
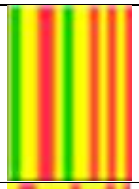
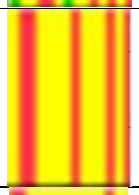
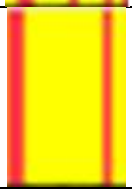

Scotts Jeannine 1a
MW Julian
Ed Julian 2a
Ed Jeannine
Scotts Jeannine
julian Jeannine
MW JohnG 7c
JohnG MD
Jeannine MD
Ed Scotts 8a
MD Scotts
julian Scotts
Ed Jeannine
JohnG Jeannine
MW Ed 9a
MD Jeannine
Ed JohnG 9b
Scotts MW
Scotts MD 9c
Jeannine JohnG
MD Julian 13a
julian Ed
Jeannine Ed
Scotts Jeannine 15
MD Julian
Jeannine Julian 18a
MD Julian
Ed MD
Jeannine Scotts 18b
JohnG Scotts
julian Jeannine
Jeannine Julian 18c
Scotts MW
Scotts MW 21
MD Julian
Ed JohnG
MW MD 22
Scotts Jeannine
julian MD

Chart 2

	MD match with ED
	Julian match with MD
	Julian match with Ed

These results from the region of match 8a show Julian is close to a match with Ed and somewhat less close to MD. Ed is even less closely matched to MD.

Chart 3

To get a sense for what the outcomes might have been in a more random situation, we performed a similar analysis on 7 unrelated individuals mostly derived from John Griffiths' studies earlier in 2020, none knowingly related to each other. A Lousada descendant (Bob Leuzarder) was included, and some of the others were distant matches of Barrows and Lousadas found by autosomal matches. Given the difficulty of establishing any connections with such distant matches, this group is considered to be fairly random but having certain socioeconomic characteristics in common with our study group – as an interest in genealogy probably signifies!

This random group resulted in 146 matches (cf 133) and the 7 people appeared in all the matches in accordance with the following distribution – 19, 31, 35, 36, 49, 55 and 56 (ie the distribution was much more random). The 93 matches that did not overlap with other matches was a higher proportion (64%) to the 76 found earlier (57%). Though the random group produced more matches, it produced no more multiple matches, for the same number (23) arose.

To these 23 multiple matches in the random study, individuals contributed 8, 9, 10, 14, 16, 24, and 25 times (a much more uneven distribution than before):

- In this case there were 12 triplets where there is one match (ie similar to the 9 such triplets earlier). But in addition, there is a remarkable triplet where all 3 people match each other (one such triplet occurred in the 7-relative study). Such a situation can occur when all 3 people have the same half-identical segment, but can also occur with 3 pairs of matches across 3 different half-identical segments.
- The remaining 11 cases consist of 10 quadruples and one quintuple.
- Of the quadruples, 5 have no matches other than the original independent pairs (6 previously)
- This leaves 5 intriguing cases – 4 quadruples and a quintuple – or 6 with the remarkable triplet.

Our observations on these 6 cases are as follows:

- 3 of the quadruples have 3 independent matches for the same person, but as explained in our main discussion, this is incorrect at face value - and it may be due to one of the matches being a pseudo-match (a juxtaposition of real matches)
- 1 of the quadruples shows linked matches, but the outer 2 matches do not overlap, so in effect the linking match here is like a bridge and the quadruple is of no significance.
- The quintuple could have been intriguing in other circumstances – for it consists of a triplet where all 3 people match each other, plus a parallel match. As with the remarkable triplet above, there are 2 ways the apparently identical triplet could have arisen, but genealogical input is needed to distinguish them!

Conclusion:

In the random group the same number of multiple matches occurred. The simpler category (the triplets with a match plus the quadruplets consisting of unlinked overlapping pairs) slightly outnumbers the same category in the non-random group. This shows that our targeted and more uniform group only marginally suppressed random processes. In the more intriguing category of multiple matches (complex quadruples, quintuples etc), the random group produced 6 matches, whilst the non-random group produced 8 matches of which only 2 proved to be of likely genealogical interest.