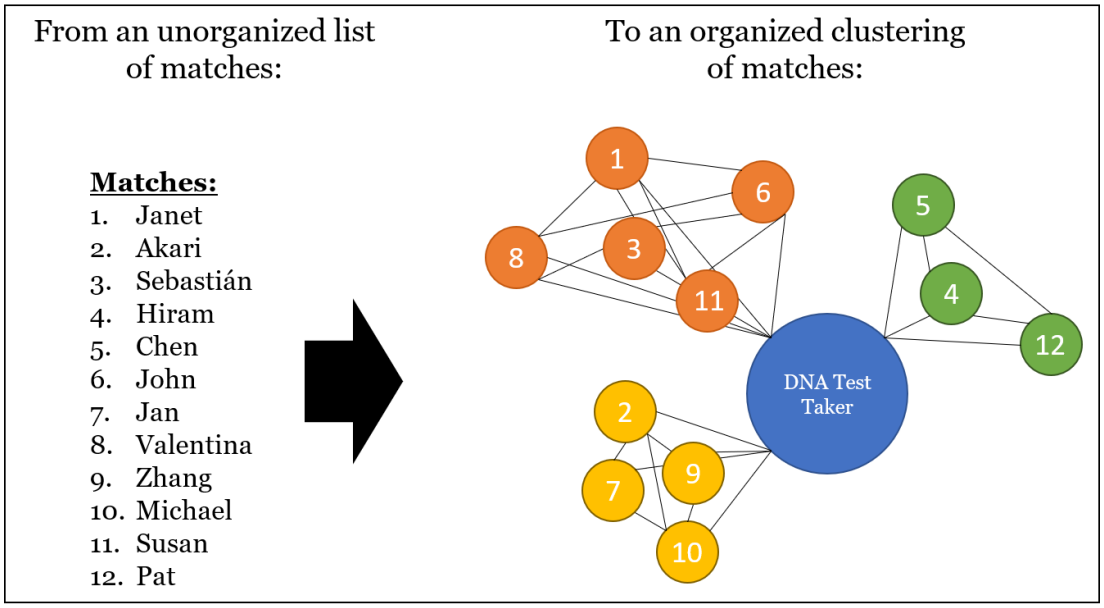
# Adding Shared Matches and Genetic Networks to Your Research

Blaine T. Bettinger, Ph.D., J.D.
blainebettinger@gmail.com / www.DNA-Central.com

## Genetic Networks

A genetic network is an arranged cluster of individuals that have taken a genealogy DNA test, arranged in a group that allows the identification of new information from the grouping. Genetic networks are created using: (1) shared matching information; (2) shared segment information; or (3) both. As genetic networks are expanded, they will also likely include genealogical relatives that fit within the network but do not share matches or DNA with the person for whom the genetic network is formed.

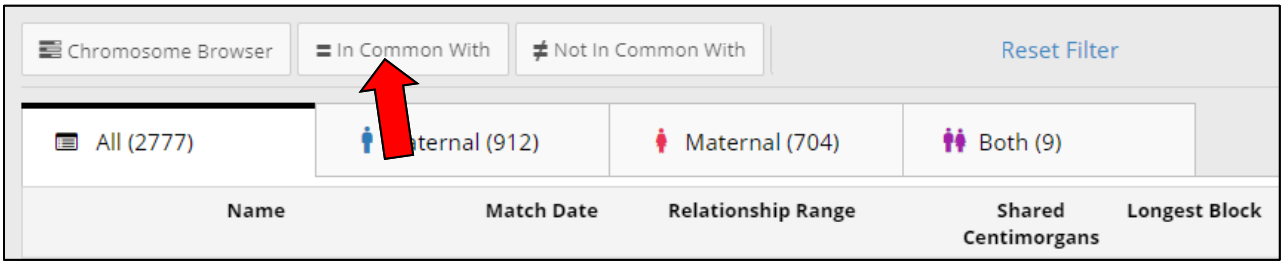



Each of the "Big Five" testing companies (23andMe, AncestryDNA, Family Tree DNA, Living DNA, and MyHeritage) and GEDmatch (www.GEDmatch.com) offers a genetic network tool for matches. These tools allow us to formulate new hypotheses about our matches, including identifying shared family lines, shared ancestors, and more.

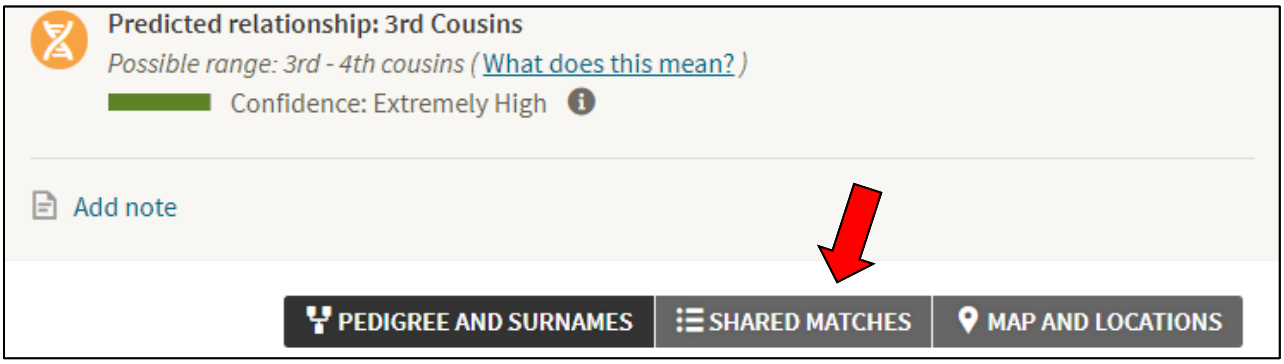
Shared Matches (also called "In Common With" matching) are potentially **the most powerful tool** for analyzing the results of DNA testing, yet they are underutilized and misunderstood. Together we will look at some of the ways to take advantage of these tools to work with our matches and break through brick walls.

Armed with shared matching and a few known cousins, you can almost instantly create **hypotheses** about how matches shared with the known cousins are related. This is also a recursive process, so you can create large genetic networks of clustered relatives.

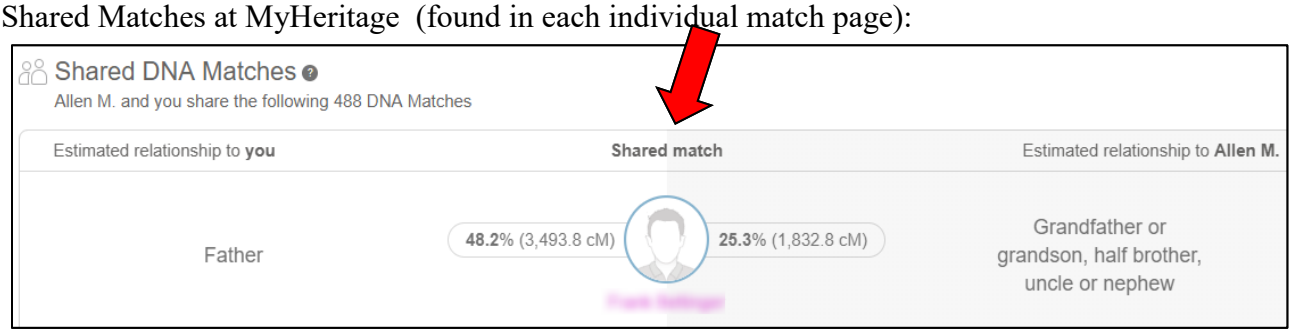
In Common With at Family Tree DNA (found on the main match page):



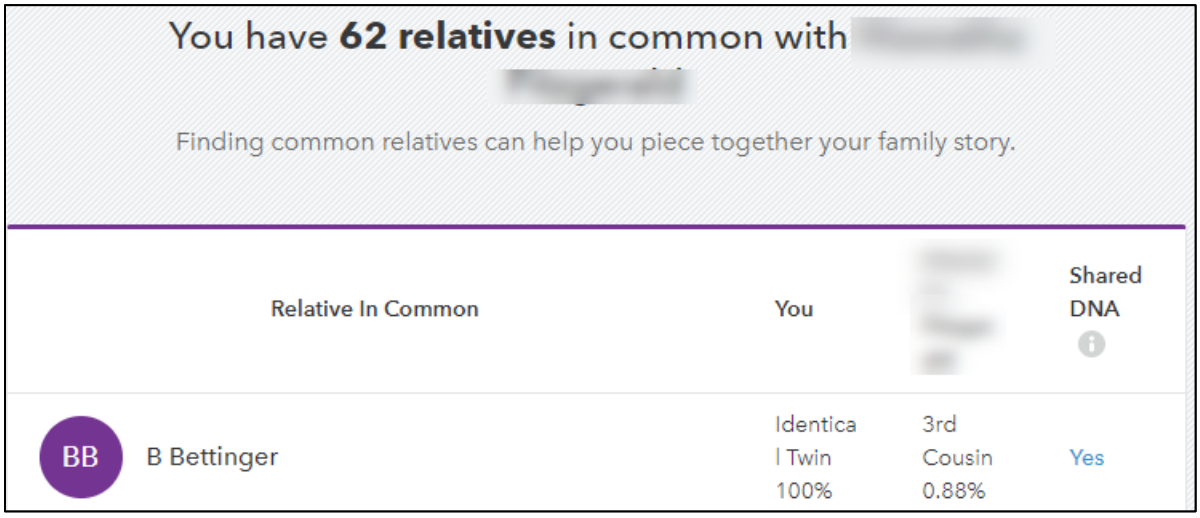

Shared Matches from AncestryDNA (found in each individual match page):




Shared Matches at MyHeritage (found in each individual match page):




Shared Matches at 23andMe (found in each individual match page):



**Using Genetic Networks**

A genetic network, whether Shared Matching or Shared Segments (or both!), helps the genealogist form a group of people that provide HINTS to a shared ancestor or ancestral couple. The theory is essentially this: ***it is reasonable to hypothesize (but NOT to conclude) that people in a Shared Match Cluster or a Shared Segment Cluster share the same common ancestor. Thus, if we can find the ancestral couple we share with one or more members of the cluster, we can hypothesize how we're related to the other members of the cluster!***

The steps for utilizing a genetic network are relatively straightforward:

1. **STEP 1**: Identify a Shared Match or Shared Segment Cluster
2. **STEP 2**: Review the trees of the individuals in the cluster (if any);
3. **STEP 3**: Identify one or more ancestors shared in common between your tree and the tree(s) of one or more individuals in the cluster. If there are no identified ancestors shared in common, review the trees for surnames and/or locations you recognize;
4. **STEP 4**: Formulate a hypothesis that you are related to the other members of the cluster via the same identified one or more ancestors; and
5. **STEP 5**: Pursue the hypothesis by gathering new evidence (build trees, contact matches, test other relatives, etc.).

Let's use an example! Assume that Simon has tested his maternal grandmother's sister (his great-aunt) Josephine. Simon sees Josephine in his match list and reviews her match page to see all of the matches he shares in common with Josephine. One of the matches in that shared match list is a person named CHRIS, an estimated fourth cousin. Accordingly, we now have a hypothesis that Simon is related to CHRIS via the same line as Simon is related to Josephine, namely the parents of Simon's maternal grandmother (Simon's great-grandparents).

One VERY important consideration for genetic networks is to remember that all members of a cluster do not necessarily share a common ancestor just because the members are in a cluster; they may be there because they share different ancestors with different people in the cluster. Additionally, for shared segment clusters, identifying one common ancestor or ancestral couple is not necessarily the end of the investigation, since it is very common for matches to share more than one ancestor!

**Third-Party Genetic Network Tools & Methodologies**

Recognizing the value of genetic networks, several members of the genealogical community that have created third-party tools or methodologies to create and/or analyze genetic networks. Below are just a few of these tools. Some of these tools are free, while others require a paid subscription.

1. RootsFinder (www.rootsfinder.com/) – a tool that generates Shared Segment Clusters using data from GEDmatch.

2. DNA Match Labeling Extension (chrome.google.com/webstore/detail/dna-match-labeling/kgkhfloclmjcbgilbdhjkmmaohlemfci) – a Chrome extension that enables AncestryDNA users to label their matches with a colored dot for organization (for Shared Match clustering).

3. The Leeds Method (https://www.danaleeds.com/dna-color-clustering-the-leeds-method-for-easily-visualizing-matches/) – a method of clustering shared matches in a spreadsheet.

4. Genetic Affairs (www.geneticaffairs.com/) – a multi-purpose service that creates Shared Match Clusters from company data (requires company access) such as AncestryDNA, 23andMe, and Family Tree DNA.

5. NodeXL (twigsofyore.blogspot.com/2017/07/visualising-ancestry-dna-matchespart.html) – a method for organizing shared matches from AncestryDNA using Excel and a free add-on called "NodeXL Basic."

6. DNADNA (/www.dnadna.uk) – a free tool that creates Shared Match clusters from AncestryDNA and GEDmatch using Gephi, a free to use dynamic network analysis graph drawing tool, and DNADNA a free-to-use Excel VBA program.

## **Resources:**


- 23andMe. Relatives In Common Tool. *23andMe Customer Care* (https://customercare.23andme.com/hc/en-us/articles/221689668-Relatives-In-Common-Tool).
- Ancestry.com. AncestryDNA Shared Matches. *Ancestry Support*, 22 June 2017 (https://support.ancestry.com/s/article/AncestryDNA-Shared-Matches).
- Bettinger, Blaine. Creating DNA Circles: Explore the Use of Genetic Networks in Genetic Genealogy. *The Genetic Genealogist*, 25 July 2015 (https://thegeneticgenealogist.com/2015/07/25/creating-dna-circles-exploring-the-use-of-genetic-networks-in-genetic-genealogy/).
- Bettinger, Blaine. Clustering Shared Matches. *The Genetic Genealogist*, 3 January 2017 (https://thegeneticgenealogist.com/2017/01/03/clustering-shared-matches/).
- Bettinger, Blaine. Are You Doing Everything to Identify Your Matches? *The Genetic Genealogist*, 11 March 2017 (https://thegeneticgenealogist.com/2017/03/11/are-you-doing-everything-to-identify-your-matches/).
- Bettinger, Blaine. Using Shared Matches – A Quick Example. *The Genetic Genealogist*, 7 October 2017 (https://thegeneticgenealogist.com/2017/10/07/using-shared-matches-a-quick-example/).
- MedBetterDNA. *Chrome Web Store* (http://devoresoftware.blogspot.com/).
- MyHeritage. Introducing the DNA Match Review Page. *MyHeritage Blog*, 22 August 2017 (https://blog.myheritage.com/2017/08/new-review-match-page-discover-how-you-are-related-to-your-dna-matches/).