

Convergence

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In the male population, some Y-DNA results are common and have a high frequency of occurrence and some Y-DNA results are less common, with a lower frequency of occurrence.

Many different events occurred in the past that impact the frequency of a Y-DNA result. Some Y-DNA results ramified well, and created a robust quantity of males, and other results became rare as branches of the Y-DNA result daughtered out.

The frequency of a Y-DNA result in the population, and then in the DNA database of the results, will determine the number of matches a man has with other surnames. Everyone will eventually have matches with other surnames.

Two results that have a large genetic distance in the past can mutate over time so that they are exact or close today.

This is called convergence.

The example below shows convergence between the ABC surname and the XYZ surname, using just 3 markers to keep the example simple. Notice how the mutations over time bring two different Y-DNA results to the point that they are an exact match.

Year	ABC	XYZ	
1200	13 24 15	14 25 13	Genetic distance 4
1400	13 24 15	14 25 14	
1600	14 24 15	14 25 14	
1800	14 24 15	14 24 14	
2000	14 24 14	14 24 14	Genetic distance 0

Convergence illustrates why you will have matches with other surnames.

DNA testing for genealogy is not a substitute for genealogy research, but is instead a companion. Results that match must be considered in light of the genealogy research. If you match someone with a different surname, most likely your match is the result of convergence. Many men had the same or a close Y-DNA result at the time of adoption of surnames, and adopted different surnames.