

Chapter 82

Oakley Family DNA Matches with Brittany Bunce

[Originally written 8 August 2021]

Introduction

In early July 2021, I learned that I have a large DNA match with Brittany Bunce:



The screenshot shows the 'Burks Oakley's DNA Matches' page on Ancestry.com. It features a 'List' view and a 'Map' view. The 'Filter by' section includes 'Unviewed' and 'Common ancestors'. A search bar and 'Sort' dropdown are also visible. A match for 'Brittany Bunce' is highlighted, showing a relationship of '2nd - 3rd Cousin' with 213 cM of shared DNA (3% shared). The match is linked to a public tree with 1,613 people and is marked as a common ancestor.

Brittany is the daughter of Cathy Oakley Bunce, and Cathy is a daughter of my first-cousin, David R. Oakley Sr. My DNA match with Brittany is 213 cM.

As an aside, Cathy and her older sister Susan were the flower girls at my wedding in 1973.

This short chapter is about the DNA matches that my *Oakley* relatives have with Brittany. And these DNA matches point out the vagaries of autosomal DNA inheritance.

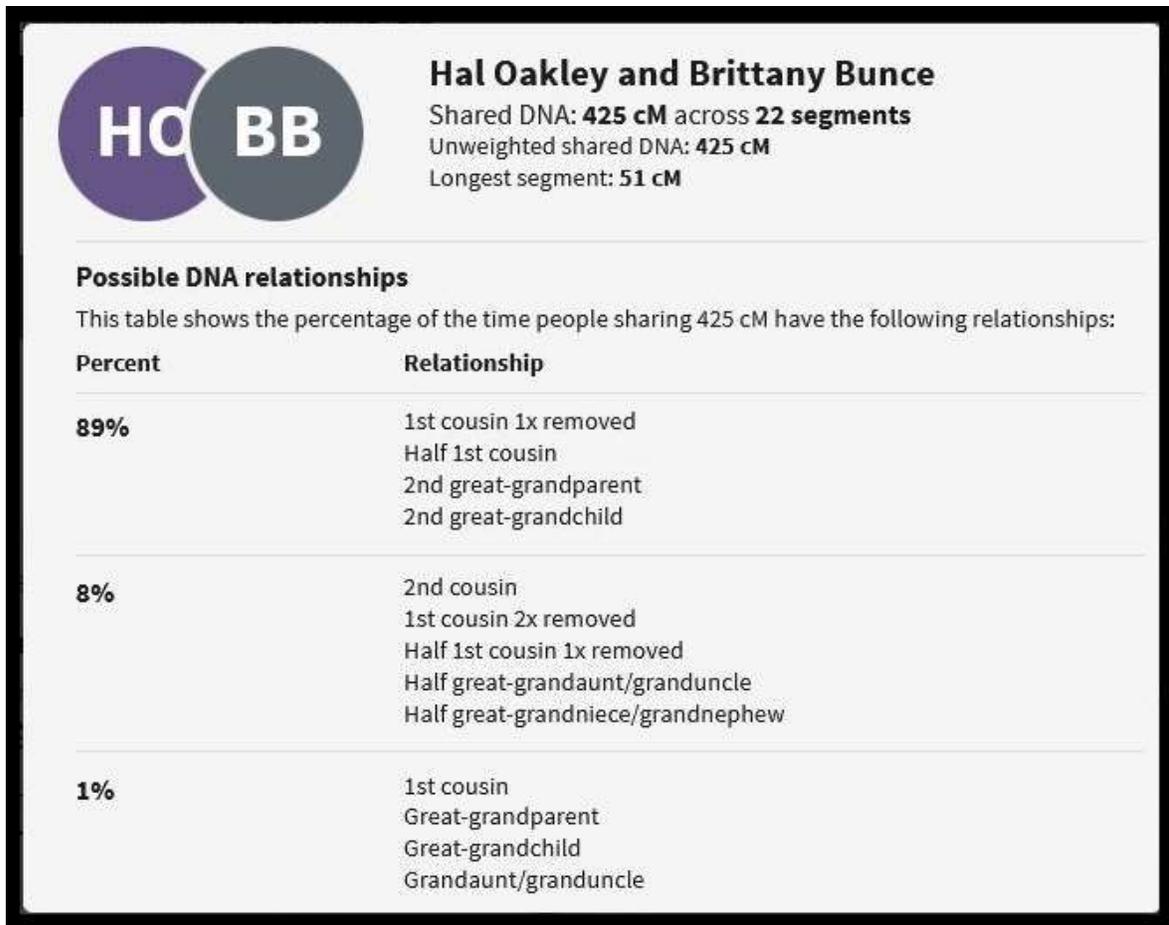
Hal Oakley and Brittany Bunce

I have access to the DNA profiles of several of my *Oakley* cousins on the Ancestry.com website. All of them have DNA matches with Brittany. The largest DNA match is between Hal Oakley and Brittany:



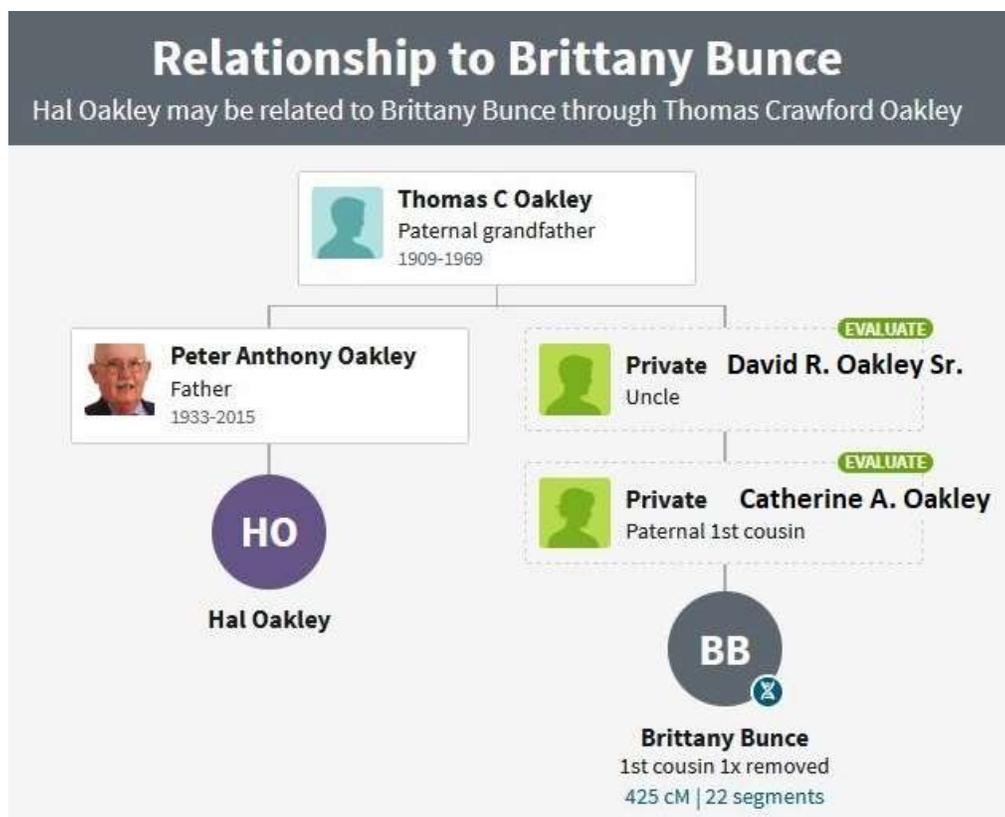
The screenshot shows the DNA match between Hal Oakley and Brittany Bunce. It features a circular icon with 'HO' and 'BB'. The match is titled 'Hal Oakley and Brittany Bunce' and is managed by Sherry Monday. The relationship is '1st - 2nd Cousin' with 6% shared DNA (425 cM across 22 segments).

Hal and Brittany share 425 cM of DNA, and based solely on the size of this match, they could be 1st- or 2nd-cousins. In fact, the software on the Ancestry.com website can make a much more precise estimation of how Hal and Brittany are related:



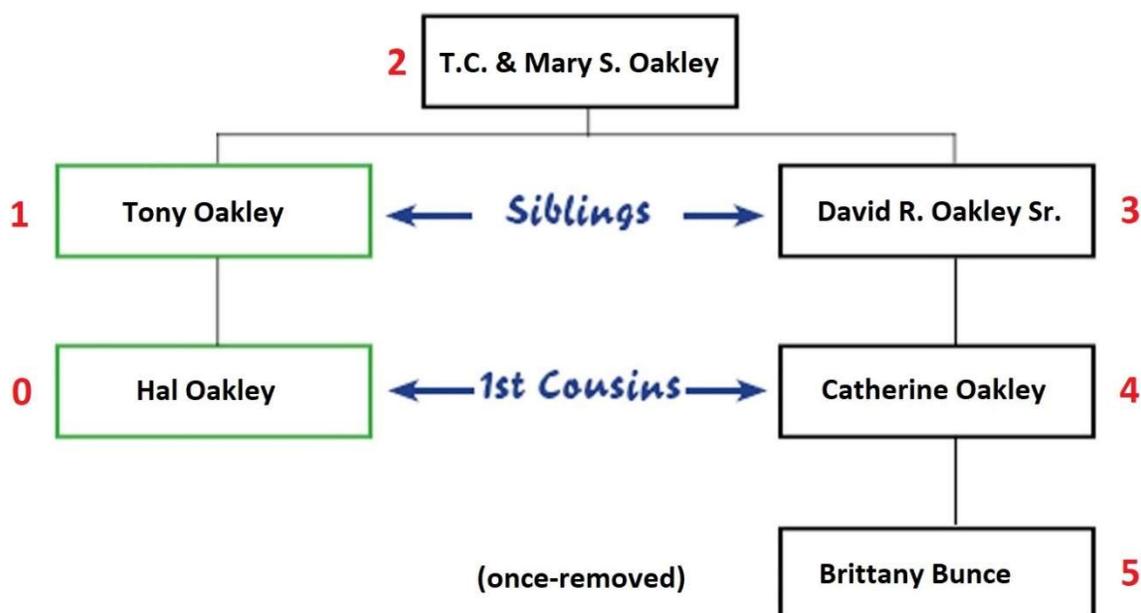
According to this chart, Hal and Brittany have an 89% chance of being 1st-cousins once-removed (or an equivalent relationship), but only an 8% chance of being 2nd-cousins, and just a 1% chance of being 1st-cousins.

Here is a chart showing exactly how Hal and Brittany are related:



Hal is descended from Thomas C. Oakley and his wife Mary S. Sullivan Oakley (not shown in the chart) through their son Peter A. “Tony” Oakley, while Brittany is descended from this couple through their son David R. Oakley Sr. Based on this chart, Hal is a 1st-cousin of Catherine A. “Cathy” Oakley (married name Bunce), and therefore a 1st-cousin once-removed of Brittany. This is exactly what the software predicted based on the size of their DNA match.

Let me now provide another detail about the relationship between Hal and Brittany. Here is another chart showing this relationship:



We can calculate the number of “degrees of separation” between Hal and Brittany. I’ll start with Hal (labelled with a red zero), then count along the path to Brittany – Tony (1), T.C. and Mary S. Oakley (2), David R. Oakley Sr. (3), Catherine Oakley (4), and Brittany Bunce (5). So Hal and Brittany have five degrees of separation.

Here is an example of 1st-cousins twice-removed (this chart came from the Ancestry.com website):

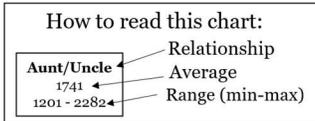


Here we have six degrees of separation. Of course, two people who are 2nd-cousins would also have six degrees of separation. I’ll come back to this later in the narrative.

In 2020, the noted genetic genealogist Blaine T. Bettinger published the results of his study of the amount of DNA shared between two people with a known genealogical connection. The results of his study are summarized in the following chart:

The Shared cM Project – Version 4.0 (March 2020)

Blaine T. Bettinger
www.TheGeneticGenealogist.com
CC 4.0 Attribution License



Half GG-Aunt/Uncle 208 103 - 284	Great-Grandparent 887 485 - 1486						Great-Great-Aunt/Uncle 420 186 - 713	GGG-Aunt/Uncle 117 25 - 238	GGGG-Aunt/Uncle 51 0 - 154	Other Relationships	
Half 1C2R 125 16 - 269	Half Great-Aunt/Uncle 431 184 - 668	Grandparent 1754 984 - 2462				Great Aunt/Uncle 850 330 - 1467	1C2R 221 33 - 471	2C2R 71 0 - 244	3C2R 36 0 - 166	6C 18 0 - 71	
Half 2C1R 66 0 - 190	Half 1C1R 224 62 - 469	Half Aunt/Uncle 871 492 - 1315	Parent 3485 2376 - 3720		Aunt/Uncle 1741 1201 - 2282	1C1R 433 102 - 980	2C1R 122 14 - 353	3C1R 48 0 - 192	4C1R 28 0 - 126	6C1R 15 0 - 56	
Half 3C 48 0 - 168	Half 2C 120 10 - 325	Half 1C 449 156 - 979	Half-Sibling 1759 1160 - 2436	Sibling 2613 1613 - 3488	SELF	1C 866 396 - 1397	2C 229 41 - 592	3C 73 0 - 234	4C 35 0 - 139	5C 25 0 - 117	6C2R 13 0 - 45
Half 3C1R 37 0 - 139	Half 2C1R 66 0 - 190	Half 1C1R 224 62 - 469	Half Niece/Nephew 871 492 - 1315	Niece/Nephew 1740 1201 - 2282	Child 3487 2376 - 3720	1C1R 433 102 - 980	2C1R 122 14 - 353	3C1R 48 0 - 192	4C1R 28 0 - 126	5C1R 21 0 - 80	7C 14 0 - 57
Half 3C2R 27 0 - 78	Half 2C2R 48 0 - 144	Half 1C2R 125 16 - 269	Half Great Niece/Nephew 431 184 - 668	Great Niece/Nephew 850 330 - 1467	Grandchild 1754 984 - 2462	1C2R 221 33 - 471	2C2R 71 0 - 244	3C2R 36 0 - 166	4C2R 22 0 - 93	5C2R 18 0 - 65	7C1R 12 0 - 50
Half 3C3R 60 0 - 120	Half 2C3R 60 0 - 120	Half 1C3R 60 0 - 120	Half GG Niece/Nephew 208 103 - 284	Great-Great Niece/Nephew 420 186 - 713	Great-Grandchild 887 485 - 1486	1C3R 117 25 - 238	2C3R 51 0 - 154	3C3R 27 0 - 98	4C3R 19 0 - 60	5C3R 13 0 - 30	8C 11 0 - 42

Minimum was automatically set to 0 cM for relationships more distant than Half 2C, and averages were determined only for submissions in which DNA was shared

Recall the Hal and Brittany are 1st-cousins once-removed (1C1R). The relevant section of the chart is shown here:

1C1R 433 102 - 980

On average, 1C1R share 433 cM of DNA, with a range of 102-980 cM. Hal and Brittany share 425 cM, which is amazingly close to the average amount of shared DNA for their 1C1R relationship.

Burks Oakley II and Brittany Bunce

Let me now move on to the next largest DNA match, and that is my match with Brittany:



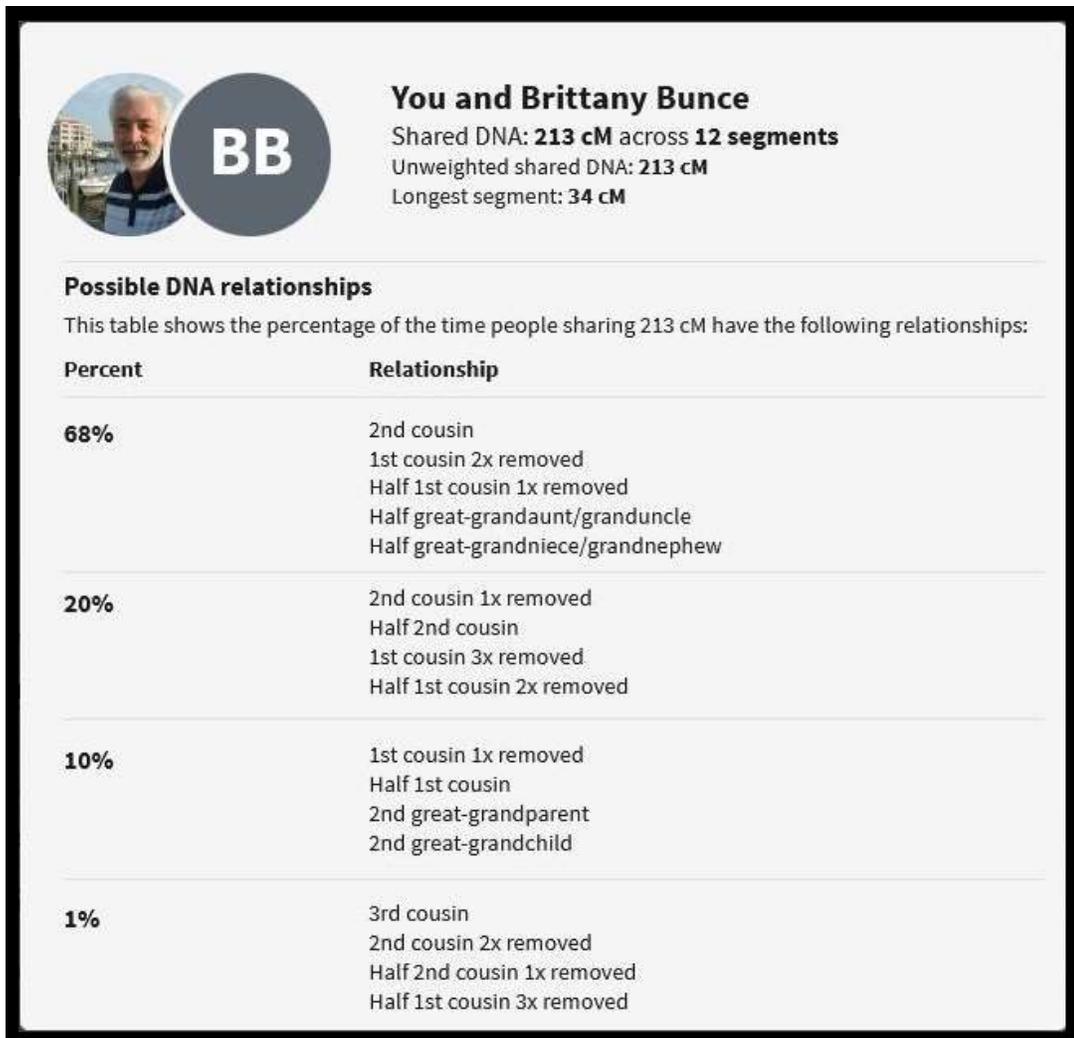
You and Brittany Bunce

Brittany Bunce's test is managed by: Sherry Monday

2nd - 3rd Cousin

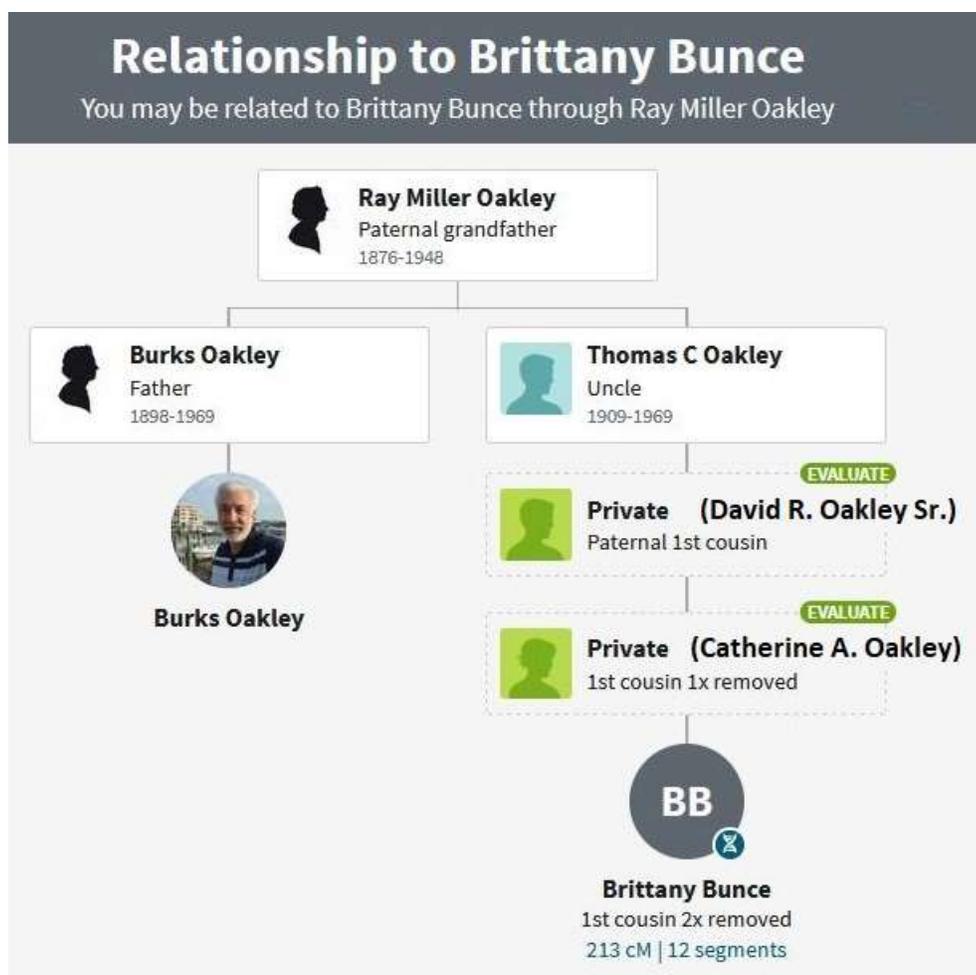
3% shared DNA: 213 cM across 12 segments

Brittany and I share 213 cM of DNA. Based on the size of this DNA match, software on the Ancestry.com website constructed a chart showing the probabilities of various relationships:



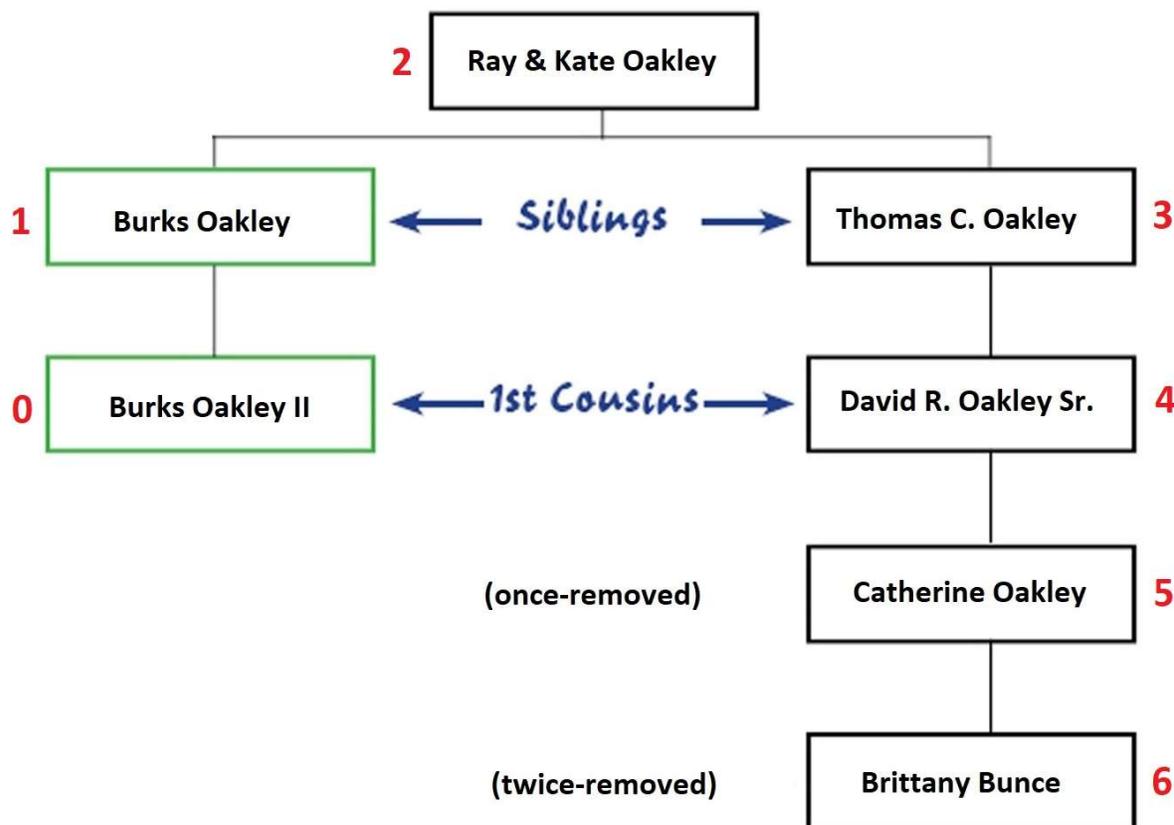
Based on this chart, Brittany and I have a 68% chance of being 2nd-cousins, or any other relationship with six degrees of separation, such as a 1st-cousin twice-removed. Lesser probabilities include 2nd-cousin once-removed (20%), 1st-cousin once-removed (10%), and 3rd-cousin (1%).

Here is a chart showing how Brittany and I are related:

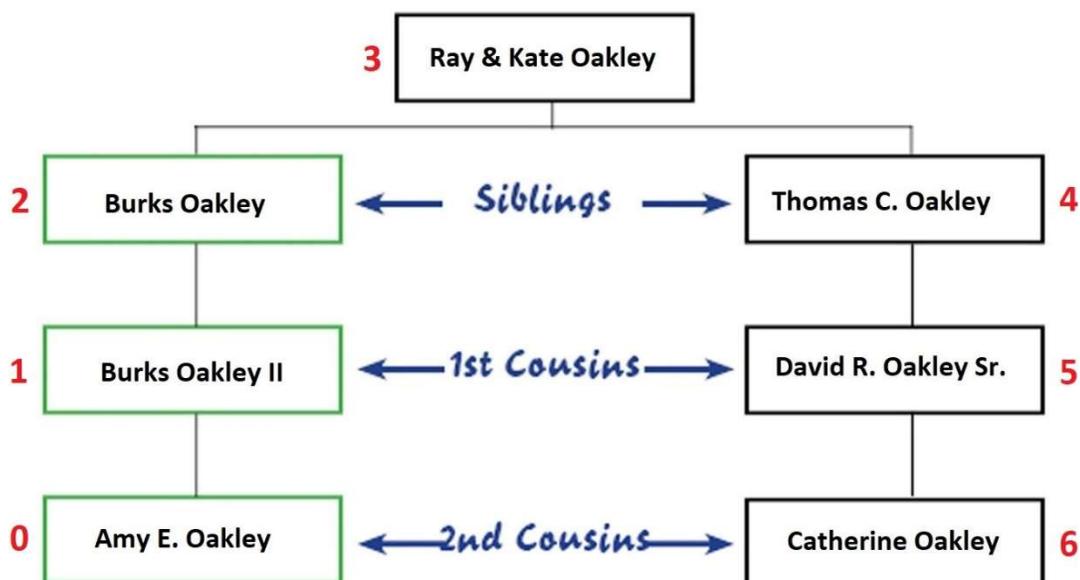


I am descended from Ray Miller Oakley and his wife Kate Cameron Burks Oakley (not shown) through their son Burks Oakley, while Brittany is descended from this couple through their son Thomas C. Oakley. This chart shows that I am a 1st-cousin of David R. Oakley Sr., and therefore a 1st-cousin twice-removed of Brittany. This relationship had the highest probability of any predicted by the software on Ancestry.com.

Here is another relationship chart showing that Brittany and I have six degrees of separation:



Let me emphasize that there are other relationships that have six degrees of separation. For example, here is a chart showing how my daughter Amy Oakley is related to Catherine Oakley:



Amy and Cathy are 2nd-cousins and have six degrees of separation, and we would expect that they would have a very similar DNA match to the one that Brittany and I have. Hopefully this helps explain why each of the probabilities for the various relationships include multiple possibilities.

Brittany and I are 1st-cousins twice-removed (1C2R) and we share 213 cM of DNA. Here is the entry for 1C2R from Blaine Bettinger's study:

1C2R
221
33 – 471

On average, 1C2R share 221 cM, so my match with Brittany (213 cM) is very close to this average.

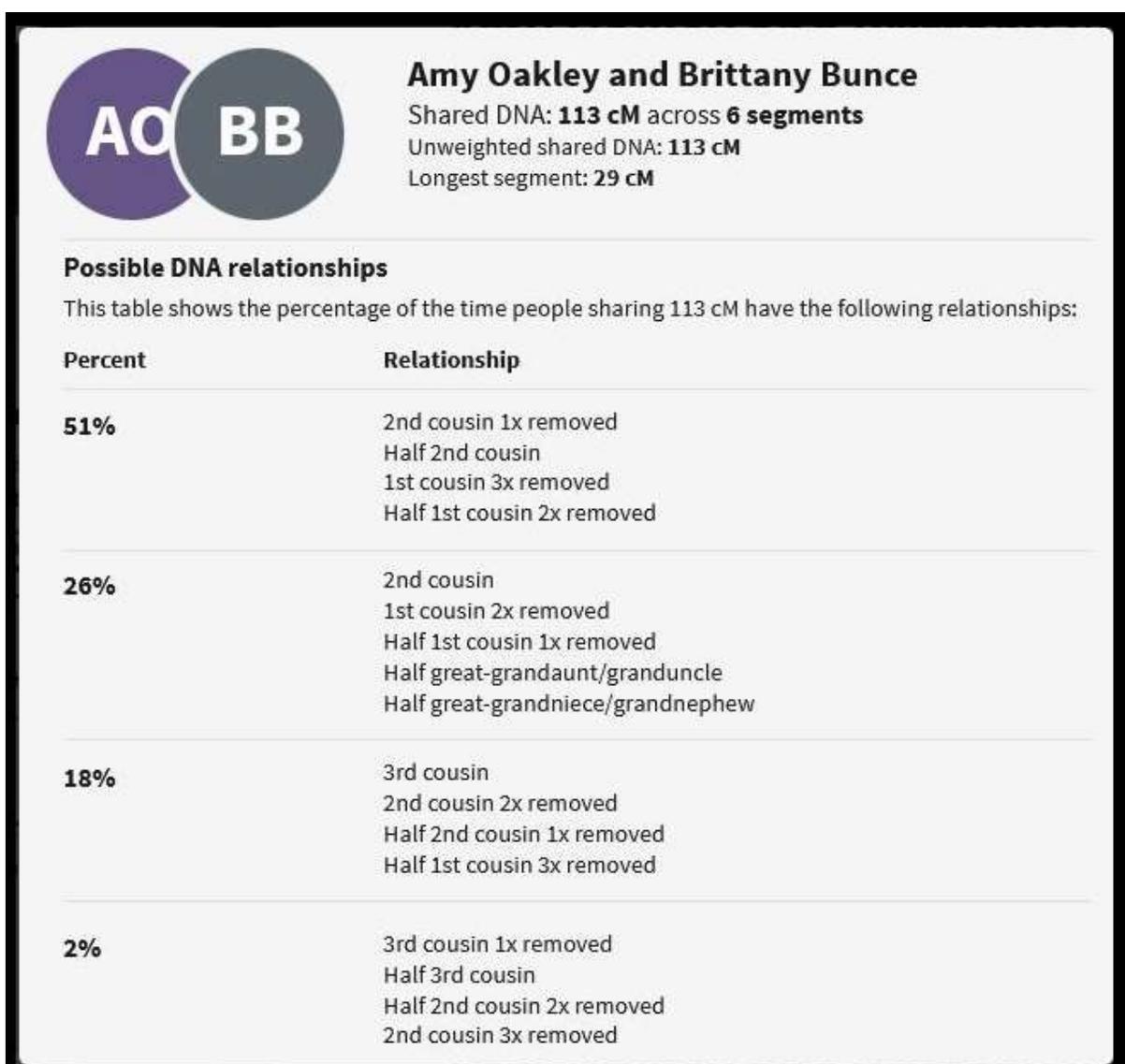
Amy Oakley and Brittany Bunce

I mentioned my daughter Amy Oakley above. Amy also has a DNA match with Brittany:



Amy Oakley and Brittany Bunce
Brittany Bunce's test is managed by: Sherry Monday
2nd – 3rd Cousin | Father's side
2% shared DNA: 113 cM across 6 segments

Based on the size of this match, software on Ancestry.com came up with the following probabilities of various relationships:



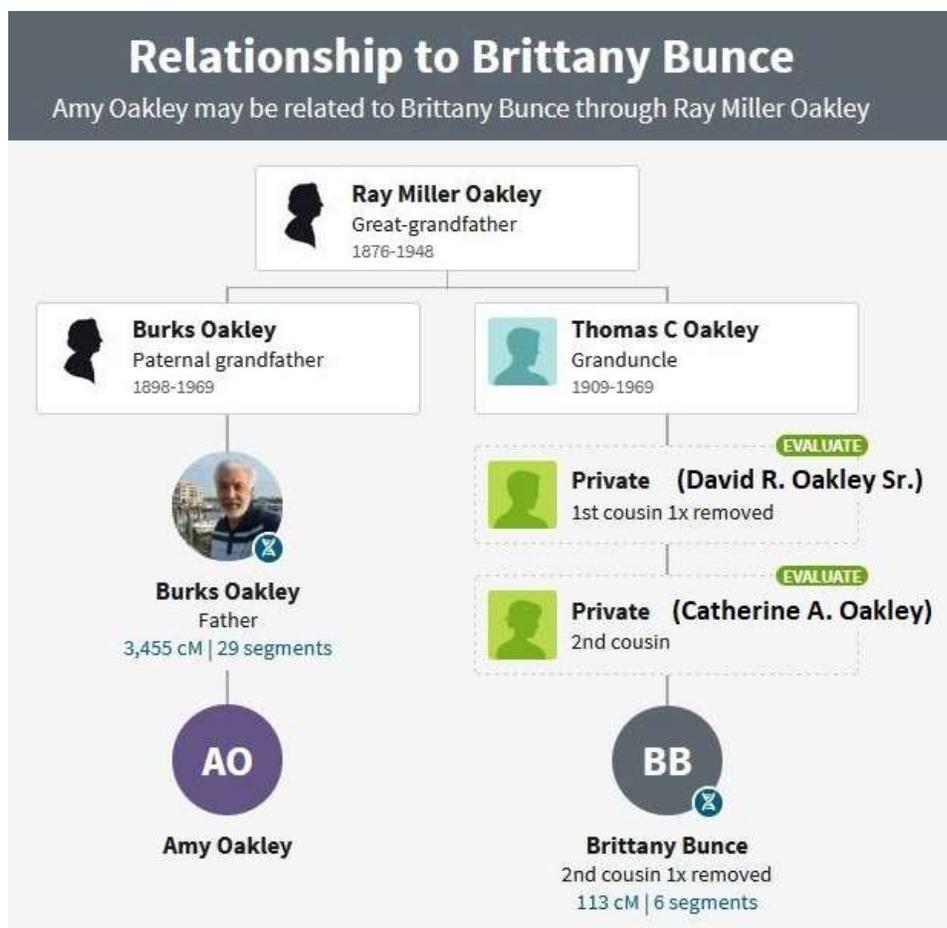
Amy Oakley and Brittany Bunce
Shared DNA: **113 cM** across **6 segments**
Unweighted shared DNA: **113 cM**
Longest segment: **29 cM**

Possible DNA relationships
This table shows the percentage of the time people sharing 113 cM have the following relationships:

Percent	Relationship
51%	2nd cousin 1x removed Half 2nd cousin 1st cousin 3x removed Half 1st cousin 2x removed
26%	2nd cousin 1st cousin 2x removed Half 1st cousin 1x removed Half great-grandaunt/granduncle Half great-grandniece/grandnephew
18%	3rd cousin 2nd cousin 2x removed Half 2nd cousin 1x removed Half 1st cousin 3x removed
2%	3rd cousin 1x removed Half 3rd cousin Half 2nd cousin 2x removed 2nd cousin 3x removed

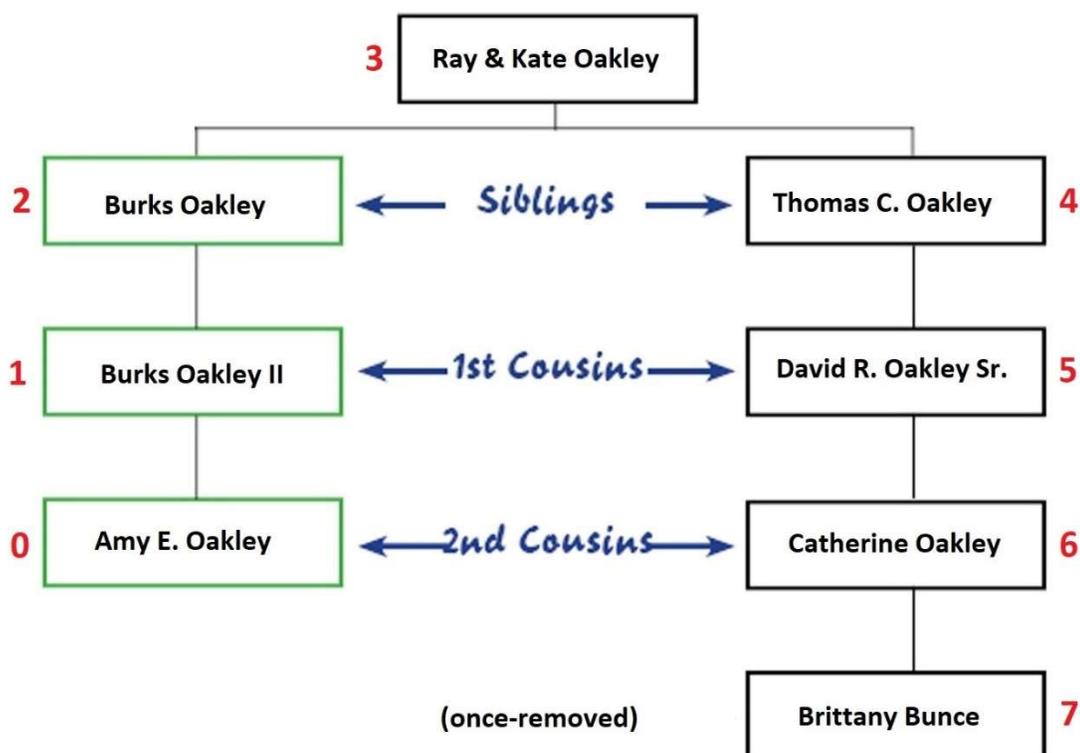
Based on this chart, Brittany and Amy have a 51% chance of being 2nd-cousins once-removed, with lesser probabilities for other relationships: 2nd-cousin – 26%, 3rd-cousin – 18%, and 3rd-cousin once-removed – 2%.

Here is a chart showing how Brittany and Amy are related:



Based on this chart, Amy and Brittany are 2nd-cousins once-removed – exactly what the software predicted to have the highest probability.

Here is another version of this relationship chart:



From this chart, Amy and Brittany have seven degrees of separation.

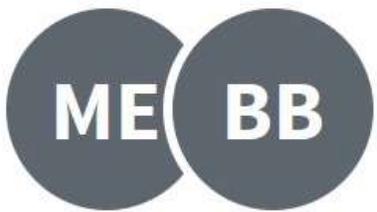
Amy and Brittany are 2nd-cousins once-removed (2C1R) and they share 113 cM of DNA. Here is the entry for 2C1R from the Bettinger table:

2c1R
122
14 – 353

The size of Amy's DNA match with Brittany is very close to the average that would be expected for this relationship.

Mark Eidem and Brittany Bunce

The last ***Oakley*** family member I will look at is Mark C. Eidem. Mark also has a DNA match with Brittany:



Mark Eidem and Brittany Bunce
Brittany Bunce's test is managed by: Sherry Monday
5th – 8th Cousin
< 1% shared DNA: 19 cM across 3 segments

Oh my! The size of their DNA match is only 19 cM – much smaller than the other matches I have discussed up to this point.

Based on the size of this DNA match, software on Ancestry.com predicted the probabilities of various relationships:



Mark Eidem and Brittany Bunce

Shared DNA: **19 cM** across **3 segments**

Unweighted shared DNA: **29 cM**

Longest segment: **14 cM**

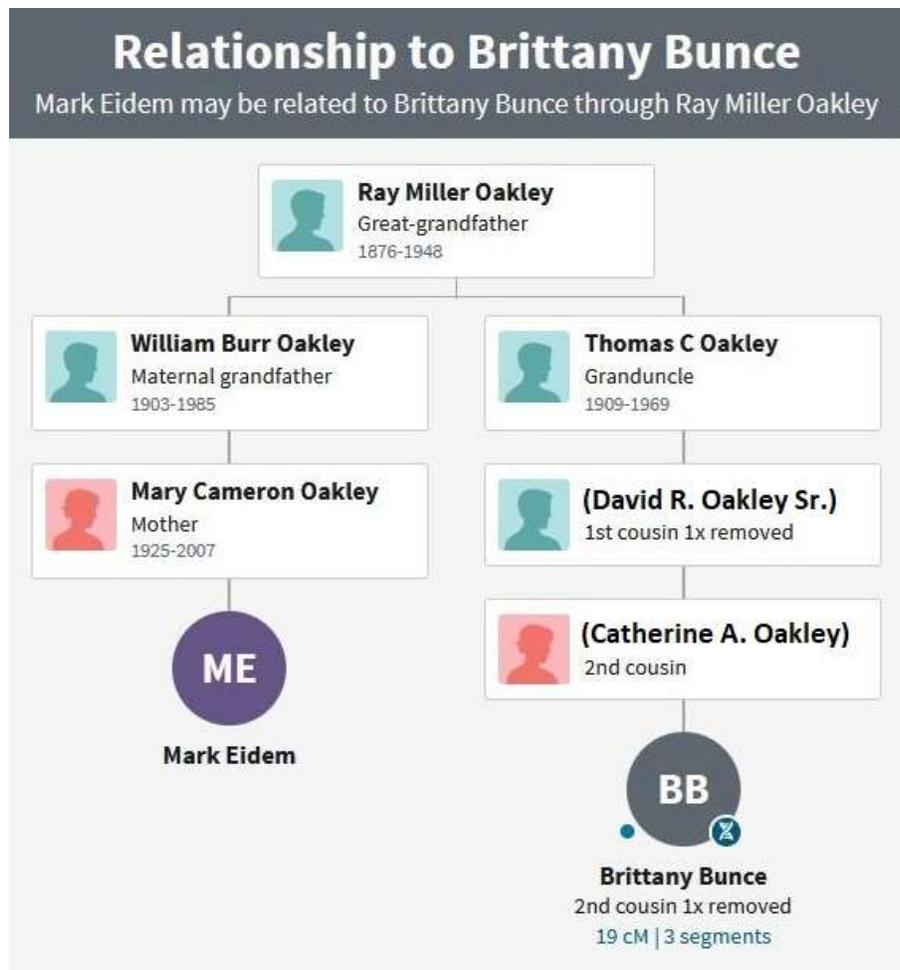
Possible DNA relationships

This table shows the percentage of the time people sharing 19 cM have the following relationships:

Percent	Relationship
22%	3rd cousin 1x removed Half 3rd cousin Half 2nd cousin 2x removed 2nd cousin 3x removed
22%	4th cousin 3rd cousin 2x removed Half 3rd cousin 1x removed Half 2nd cousin 3x removed
16%	4th cousin 1x removed Half 4th cousin Half 3rd cousin 2x removed 3rd cousin 3x removed
14%	3rd cousin 2nd cousin 2x removed Half 2nd cousin 1x removed Half 1st cousin 3x removed
11%	Distant relationship
10%	5th cousin 4th cousin 2x removed Half 4th cousin 1x removed Half 3rd cousin 3x removed
3%	2nd cousin 1x removed Half 2nd cousin 1st cousin 3x removed Half 1st cousin 2x removed

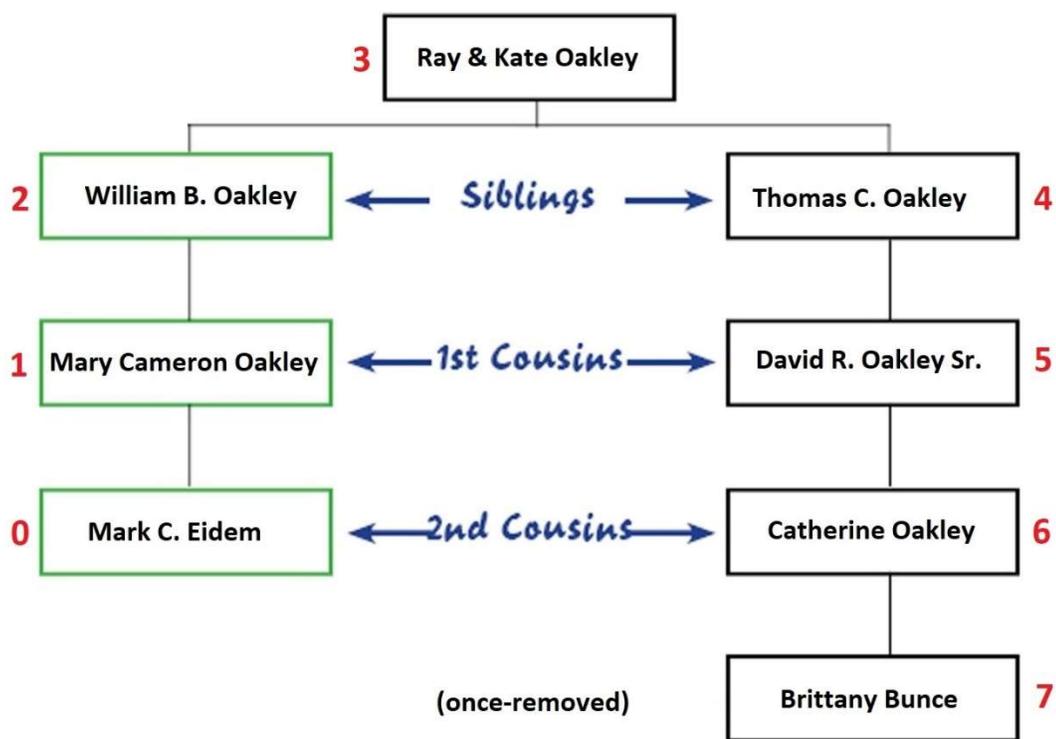
It appears that as the size of the DNA match decreases, more possible relationships come into play. Here we see that the largest probabilities are a 3rd-cousin once-removed (22%) and a fourth-cousin (22%). The probabilities of other relationships decrease until we get to a 2nd-cousin once-removed (3%).

Here is a chart showing how Mark and Brittany are related:



Based on this chart, Mark and Brittany are 2nd-cousins once-removed. Recall from the probabilities shown on the previous page, there was only a 3% chance of this relationship (based on the small size of their DNA match).

Here is another version of their relationship chart:



Mark and Brittany have seven degrees of separation.

Mark and Brittany are 2C1R and share just 19 cM of DNA. Here is the entry for 2C1R from the Bettinger study:

2c1R
122
14 – 353

Mark and Brittany’s match (19 cM) is much, much smaller than the average of 122 cM, and close to the smallest size that was observed in the Bettinger study (14 cM)!

It is interesting to see that both Amy and Mark have a 2C1R relationship with Brittany. Amy and Brittany share 113 cM, while Mark and Brittany share just 19 cM. This really emphasizes the vagaries of the inheritance of autosomal DNA.

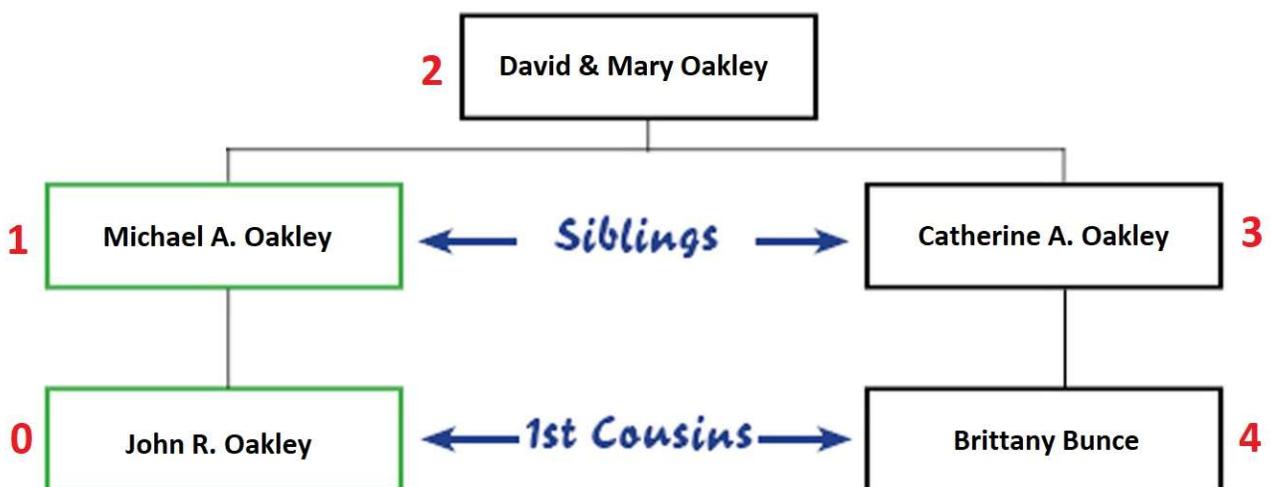
In very basic terms:

<https://www.familytreemagazine.com/dna/how-to-use-shared-dna-to-determine-relationships/>

Note that a given relationship, such as first cousins, can share varying amounts of DNA because of recombination (“shuffling” that occurs at conception). You usually share about 850 cM with a first cousin, but that number could be as low as 553 or as high as 1,225 cM. Likewise, a single shared-cM value could indicate a variety of relationships. For example, 1,200 shared cM could indicate a first cousin, great-grandparent, grandparent, or great-niece. You’ll need more information to sift through these similar values.

John Oakley and Brittany Bunce

John Oakley has his DNA profile on the Ancestry.com website. John is a first-cousin of Brittany, as shown in the following chart:



As 1st-cousins, John and Brittany have just four degrees of separation, and they should have a much larger DNA match than the others presented in this narrative.

Here is the entry for 1st-cousins (1C) from the Bettinger study:

1C
866
396 – 1397

It would be interesting to know the size of their match. Maybe I'll be able to find this out. Stay tuned....

So, a day or so later I heard from Sherry Monday, who is managing Brittany's DNA profile on Ancestry.com. She replied that Brittany and John have a 998 cM DNA match. This is above average for 1st-cousins, but certainly well within the range observed in the Bettinger study.

Here we have it – all the Oakley family DNA matches with Brittany Bunce. And everything is just what would be expected – except for Mark Eidem's match with Brittany. But that is to be expected with autosomal DNA inheritance.