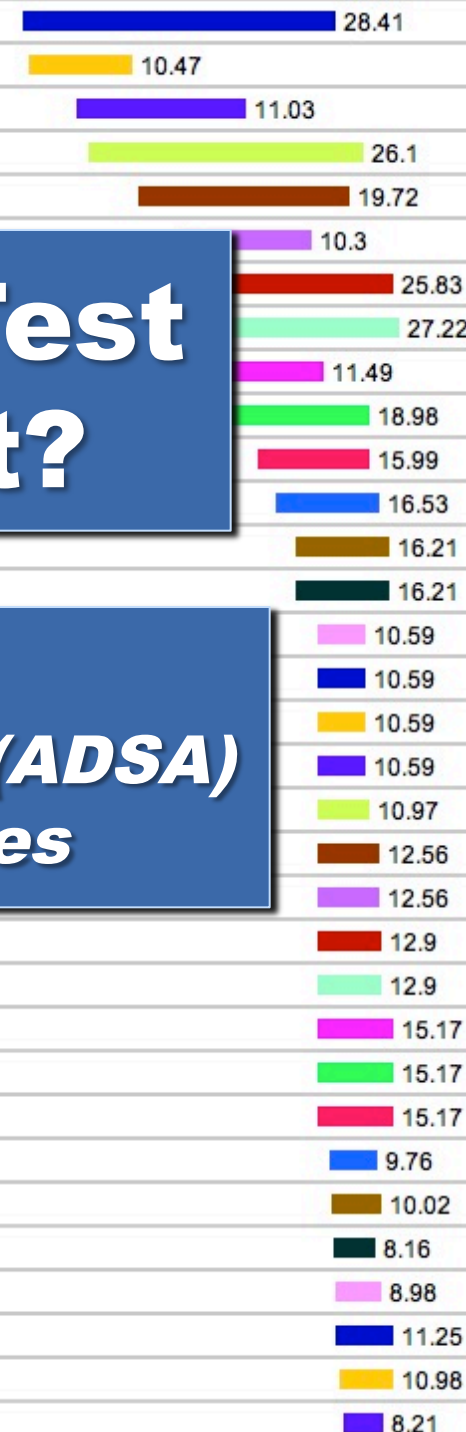


# I Got My Autosomal Test Results... Now What?

*Using the  
Autosomal DNA Segment Analyzer (ADSA)  
to Visualize Your atDNA Matches*

**Don Worth**  
worth@ucla.edu



# I just got my Family Finder results back...

The screenshot shows the myFTDNA website interface. At the top, there's a navigation bar with links: Home, My Account, Projects, Family Finder, Y-DNA, mtDNA, Other Results, Resources, and an Order An Upgrade button. The user is logged in as "Living Bisher" with Kit No: 299497. The main content area is titled "Welcome to myFTDNA" and includes sections for "Your Account" (Order History, Projects, Profile), "Refer A Friend", "Interpret Your Results", and "Share Experience". The "Family Finder" section shows "Results Completed: 7/18/2013 Last Close Match: 9/25/2013" and includes buttons for Matches, Chromosome Browser, Known Relationships, and Population Finder. At the bottom, there are links for Matrix, Advanced Matches, Download Raw Data, and Learn More.

myFTDNA Family Tree DNA

Welcome, Living Bisher - Kit No: 299497 Logout

Home My Account Projects Family Finder Y-DNA mtDNA Other Results Resources Order An Upgrade

Welcome to myFTDNA Interactive Tour Feedback Refer Friends & Family A A A

**Your Account**

**Order History**

Product	Ordered
Family Finder Kit	7/18/2013

[Complete Order History](#)

**Projects**

Bishir/Bisher  
[Manage Projects](#)

**Profile**

Last Login Today  
[Manage Personal Information](#)  
[Manage Personal Profile](#)  
[Change Password](#)

**Refer A Friend**

[Click Here For More Info!](#)

**Interpret Your Results**

[Download Your eBook!](#)

**Share Experience**

[Click Here To Share!](#)

**Family Finder** ? Results Completed: 7/18/2013 Last Close Match: 9/25/2013

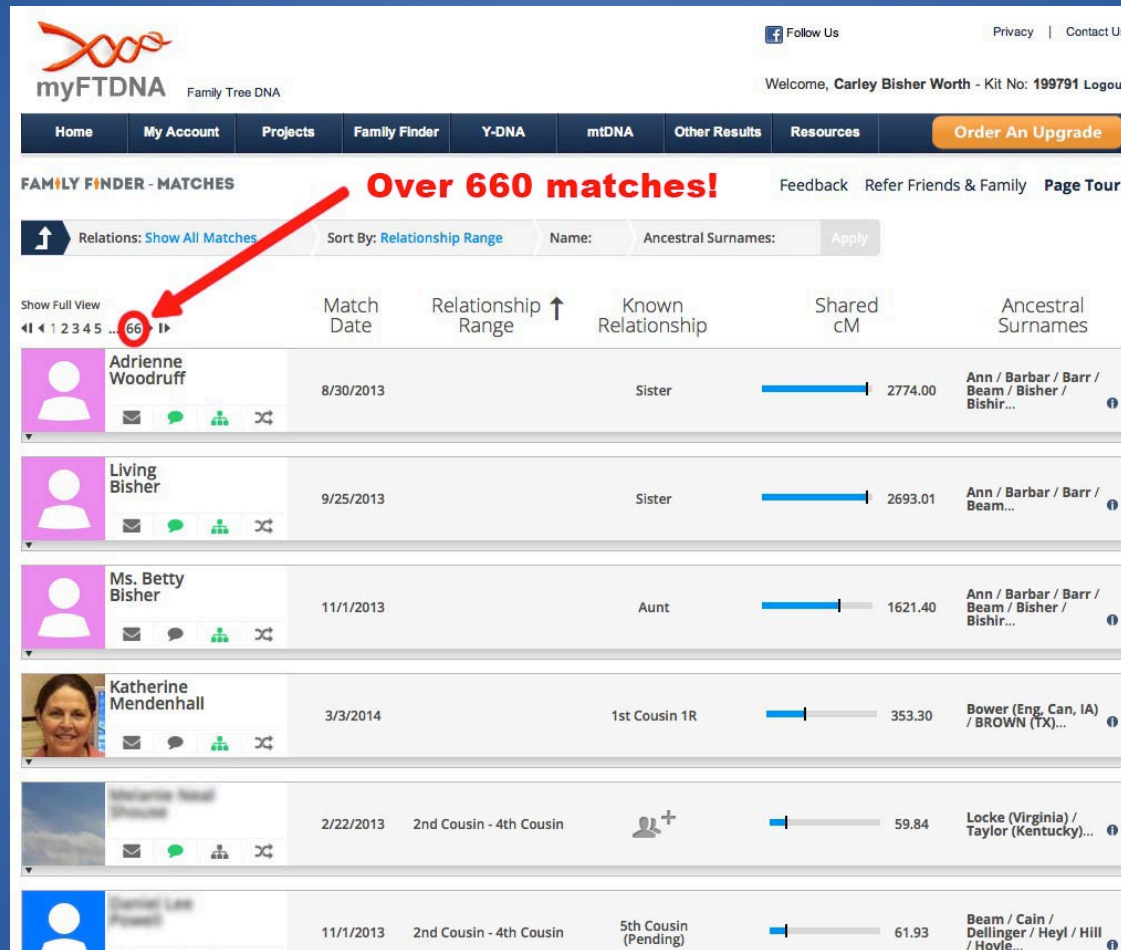
[Matches](#) [Chromosome Browser](#) [Known Relationships](#) [Population Finder](#)

[Matrix](#) | [Advanced Matches](#) | [Download Raw Data](#) | [Learn More](#)

...But it's so complicated! I'm confused.



# You could just email every match



myFTDNA Family Tree DNA







Welcome, Carley Bisher Worth - Kit No: 199791 Logout

Home My Account Projects Family Finder Y-DNA mtDNA Other Results Resources Order An Upgrade

**FAMILY FINDER - MATCHES** Over 660 matches! Feedback Refer Friends & Family Page Tour

Relations: Show All Matches Sort By: Relationship Range Name: Ancestral Surnames: Apply

Show Full View 66

	Match Date	Relationship Range	Known Relationship	Shared cM	Ancestral Surnames
 Adrienne Woodruff	8/30/2013		Sister	2774.00	Ann / Barbar / Barr / Beam / Bisher / Bishir...
 Living Bisher	9/25/2013		Sister	2693.01	Ann / Barbar / Barr / Beam...
 Ms. Betty Bisher	11/1/2013		Aunt	1621.40	Ann / Barbar / Barr / Beam / Bisher / Bishir...
 Katherine Mendenhall	3/3/2014		1st Cousin 1R	353.30	Bower (Eng. Can, IA) / BROWN (TX)...
 Unknown Male	2/22/2013	2nd Cousin - 4th Cousin		59.84	Locke (Virginia) / Taylor (Kentucky)...
 Unknown Male	11/1/2013	2nd Cousin - 4th Cousin	5th Cousin (Pending)	61.93	Beam / Cain / Dellinger / Heyl / Hill / Hoyle...

## But There's a Smarter Way...

# Triangulate!

*Use Triangulated Groups (TG) to identify groups of distant cousins who share a common ancestor*

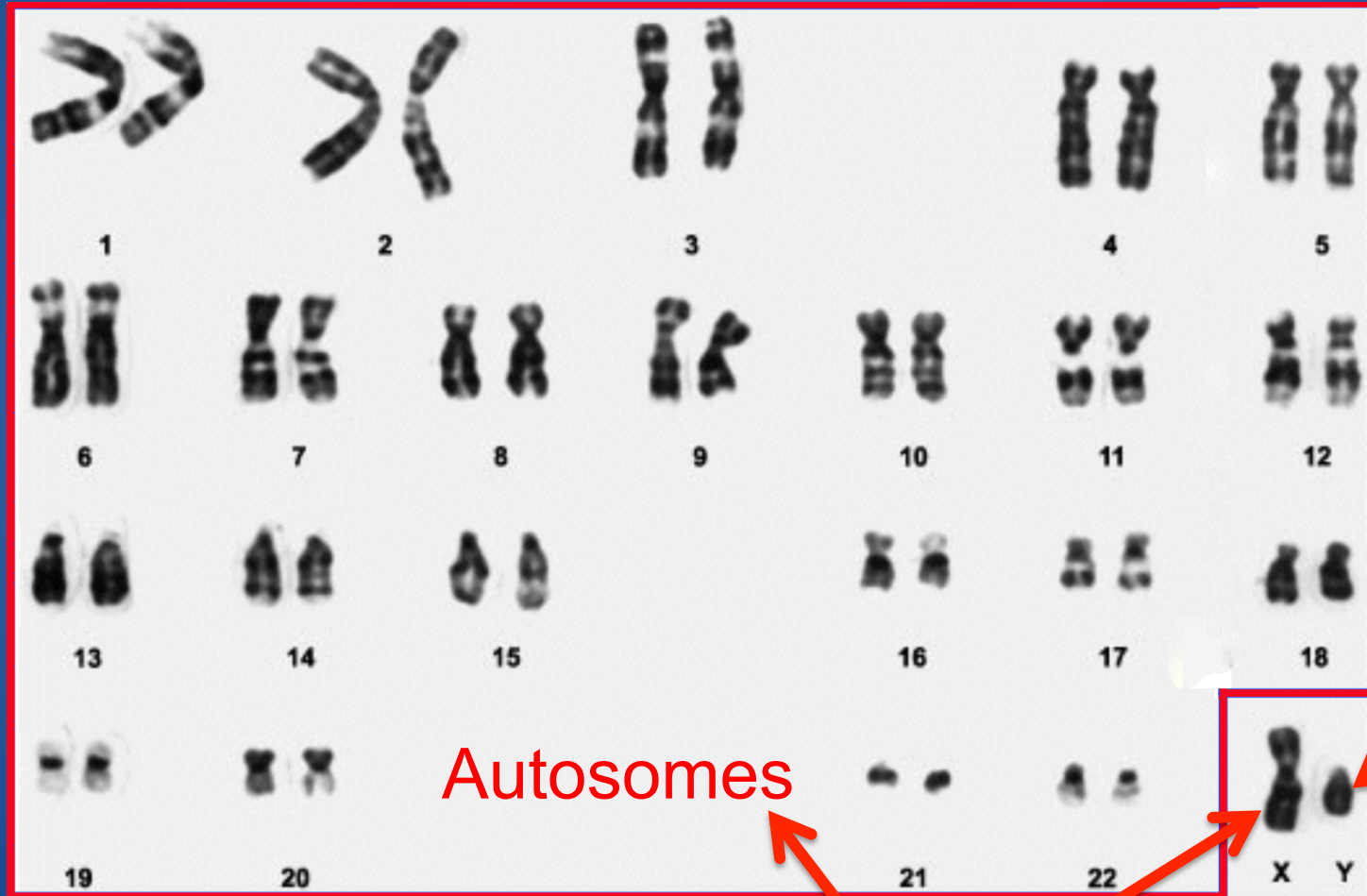


- A TG is two or more overlapping DNA segments where everyone matches everyone else
  - Process your matches in batches (not one at a time)
  - Increase the probability that matches are valid
  - Separate maternal from paternal matches
  - Improve the odds of finding the common ancestor & get it done faster by collaborating with a group

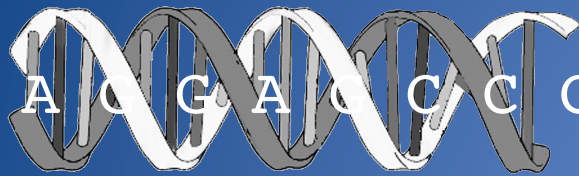


# 23 Chromosome Pairs

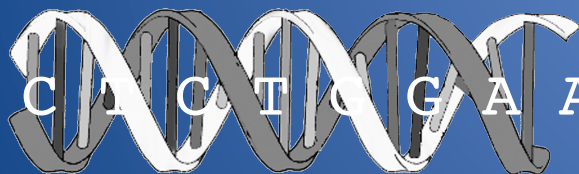
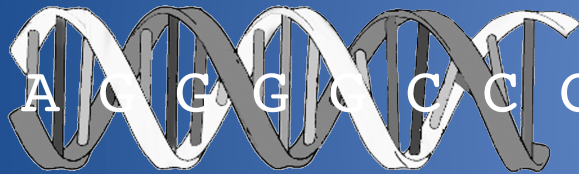
46 Chromosomes in all



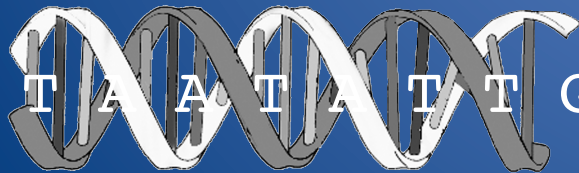
# What is a Segment?



**YOUR CHROMOSOME PAIR**



**COUSIN'S CHROMOSOME PAIR**



A C G A C C C A G A **T T C G C A C** G G A G →

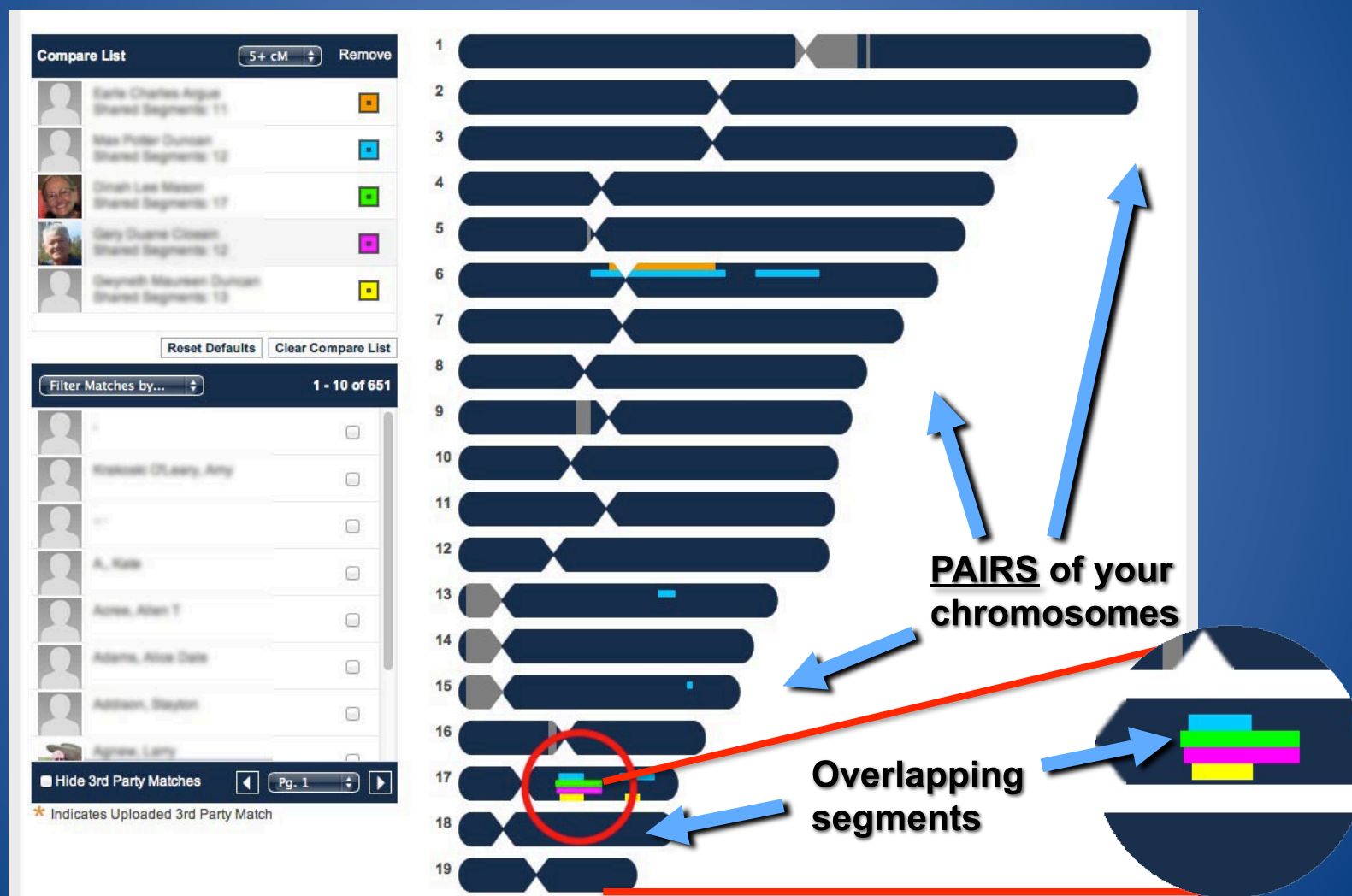
A C G G C C C A G **G A T T G G A C** G G T G →

**MATCHING SEGMENT**

C C C T C G A A G C T **T T G G C A C** T C C A →

T A A T A T T G T C **G C A T C T C T** T A G C →

# Here's What We Want To Find



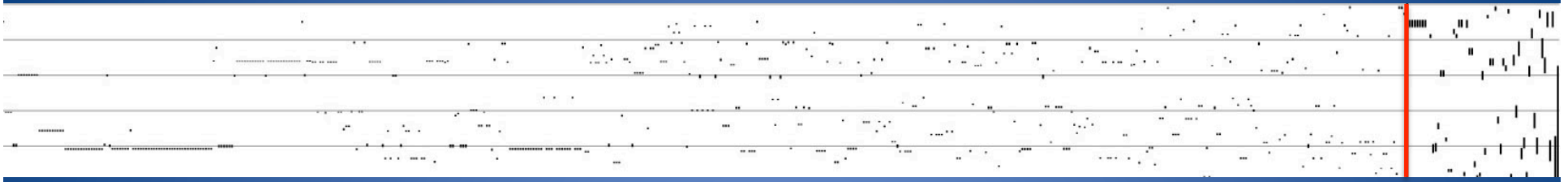
FamilyTreeDNA's Chromosome Browser

# Triangulation Step by Step

1. Pick out a nice, long segment
2. Find all the segments that overlap it
3. Compare In-Common-With (ICW) matches  
To ensure everyone in the group matches everyone else
4. You've found a Triangulated Group (TG)!  
You & the group members probably share a common ancestor
5. Compare ancestral surnames for clues
6. Contact everyone in the group by email  
To help you find the common ancestry
7. Find the next Triangulated Group and repeat...



# Not All Segments are Useful



1 cM

Don's segments on chromosome 1

8 cM

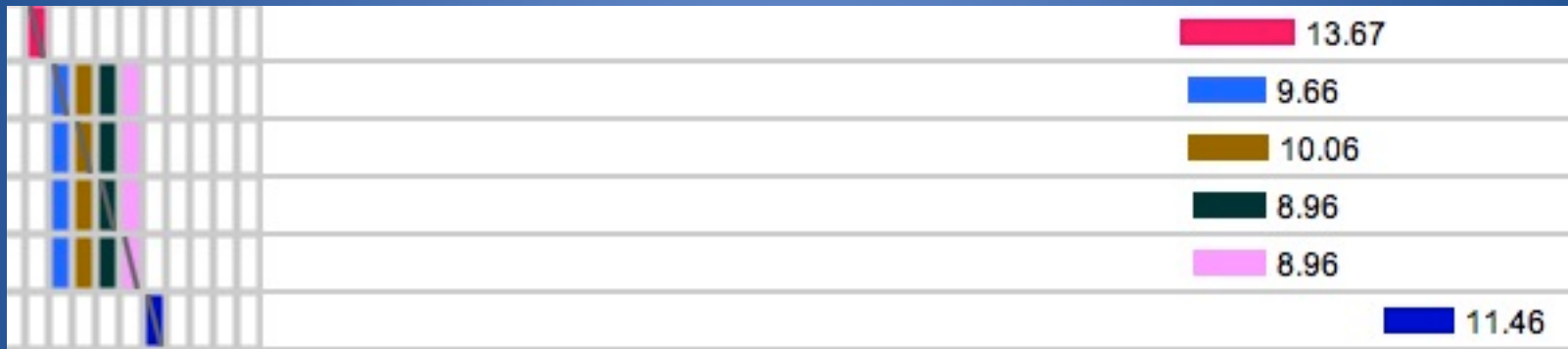
- cM (centiMorgans) measures segment “length”
- Closer relatives have more & longer segments
- Identical By Descent (IBD) vs Identical By State (IBS)
- Most segments  $< 8$  cM are IBS

Matching Segment	% IBD	% IBS
11 cM	>99%	<1%
10 cM	99%	1%
9 cM	80%	20%
8 cM	50%	50%
7 cM	30%	70%
6 cM	20%	80%
5 cM	5%	95%
4 cM	1%	99%

# I Suggest...

- Start with your longest segment
  - or a segment for your closest predicted relationship
  - or a segment with a surname of interest
- Examine short segments ( $< 10$  cM) last, or as they appear in triangulated groups
  - Short segments are more likely to be IBS (non-IBD)
  - But a short segment that is part of a triangulated group is more likely IBD
  - Even if a short segment is IBD, it may be very hard to find the common ancestor

# Look For Overlapping Segments



And In-Common-With (ICW) Matches

# Check Surnames For Clues

Karlton Leslie Shattlock - shattlock@att.net

Matched 7/6/2012, Relationship: 4th Cousin - Remote Cousin  
U4a2

Evans (Wales) / Sowden (England) / Rundle (England) / Leslie/Lassley/Lassly (Ireland/Scotland) / McKane (Ireland/Scotland) / Tyler (England) / Calkins (England) / Smith (England) / Johnson (England) / Bartholomew (England) / Parmalee (England) / Miszler (Alsace Lorraine) / Rickard (Germany) / Brannan/Branning (Ireland) / Quick (Holland) / Decker (Holland) / Felker (Germany) / Transue (Palmdale area) / Bateman (Chester, England?) / Cocklin (Marblehead, MA) / Wood (Ashford, CT) / Chapman (Ashford, CT) / Jennings/Ginnings (Ashford, CT) / Mitchell (England) / Ross (Boundbrook, NJ)

- Look for surnames you have in your tree
- Find surnames TG members have in common
- Check locations too (if given)



# Contact TG Members

- Send one standardized email to TG members:
  - Ask them to REPLY-ALL
  - Summarize the names, locations and dates in your tree (7 or 8 generations)
  - Attach a list of your surnames
  - Link to your public tree on the web
  - Attach a saved copy of your ADSA report
- Stay organized:
  - A folder for each group with the emails and files you've exchanged with group members

# Stack The Deck

*Test close relatives you know...*

- Older Relatives First! (Parents, Aunts, Uncles)
  - Older generations give you more “reach”
  - Best for phasing, triangulation & to find more matches you don’t have
- 1<sup>st</sup> or 2<sup>nd</sup> cousins
  - Can narrow search for common ancestors
- Siblings
  - Find matches you don’t have & phasing

# Stack The Deck

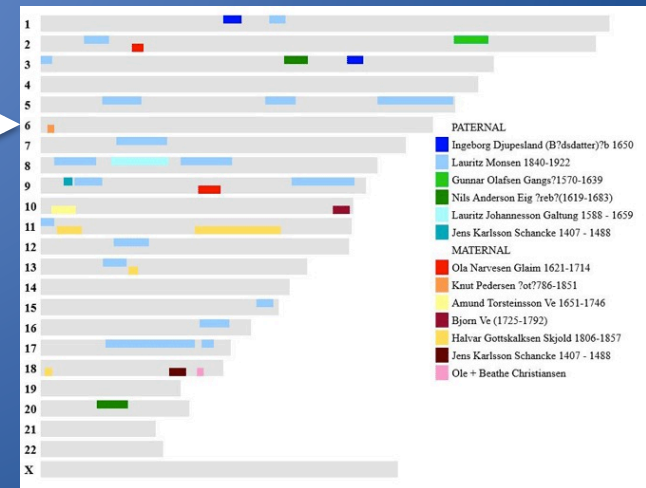
*A lesson I learned the hard way...*

It's probably not worth investing in testing known 4<sup>th</sup> or 5<sup>th</sup> cousins

Relationship	Match Probability
2nd cousins or closer	> 99%
3rd cousin	> 90%
4th cousin	> 50%
5th cousin	> 10%
6th cousin and more distant	Remote (typically less than 2%)

# Stack The Deck

- Post your GED and ancestral surnames!!!
- Fish in more ponds: test with more than one company to get into more match data bases
- Put your data on GEDMATCH.com so even more people will find you
- Map your genome



<http://blog.kittycooper.com>



# A Quick Word About Privacy...

# Demonstration

[www.dnagedcom.com/adsa](http://www.dnagedcom.com/adsa)

# ADSA “2.0”

- Relational Database with slicing, dicing and sorting using all fields
- More reports - and you can build your own
- Can handle very large data sets (Ashkenazi)
- *(Soon)* Access to 23andMe data (ICW too)

# ADSA “2.0+”

- *(Soon)* User editable fields
  - Saved in the data base
  - e.g. paternal/maternal, segment group names, common ancestor, notes, correspondence
- *(Soon)* Automatic grouping of overlapping segments
- *(Later)* Merged kits/profiles from multiple testing companies
- *(Later)* GEDMATCH support
- *(Later)* GED support
- *(Later)* Share your data with others



# Beta Testers Wanted For the New ADSA!

[test.DNAgedcom.com/adsa](http://test.DNAgedcom.com/adsa)

Contact me to get access: [worth@ucla.edu](mailto:worth@ucla.edu)

# Questions?

**Current Version of ADSA:**  
**[www.DNAgedcom.com/adsa](http://www.DNAgedcom.com/adsa)**

**“How To” Manual (for new ADSA):**  
**[tinyurl.com/adsamannual](http://tinyurl.com/adsamannual)**