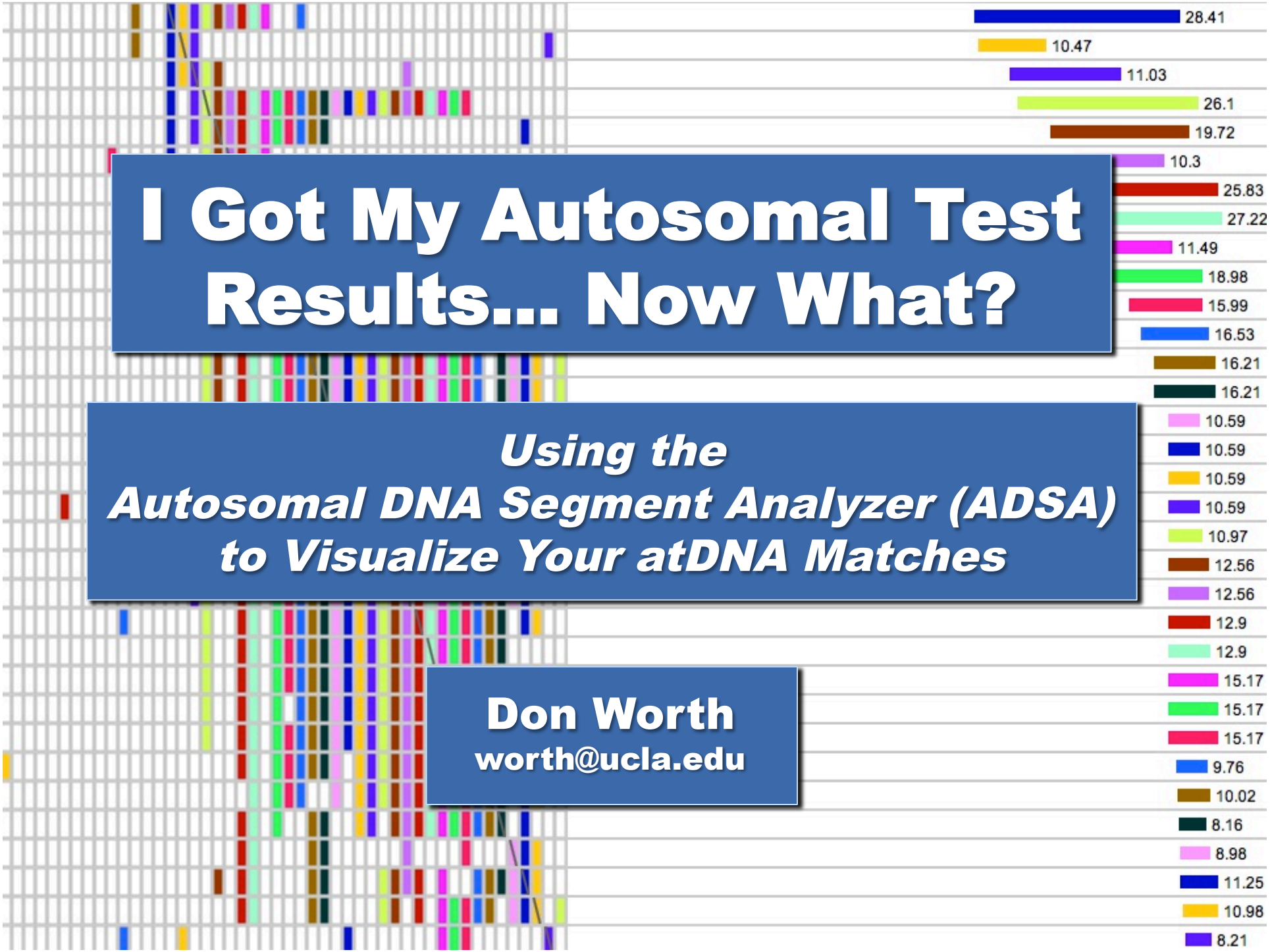
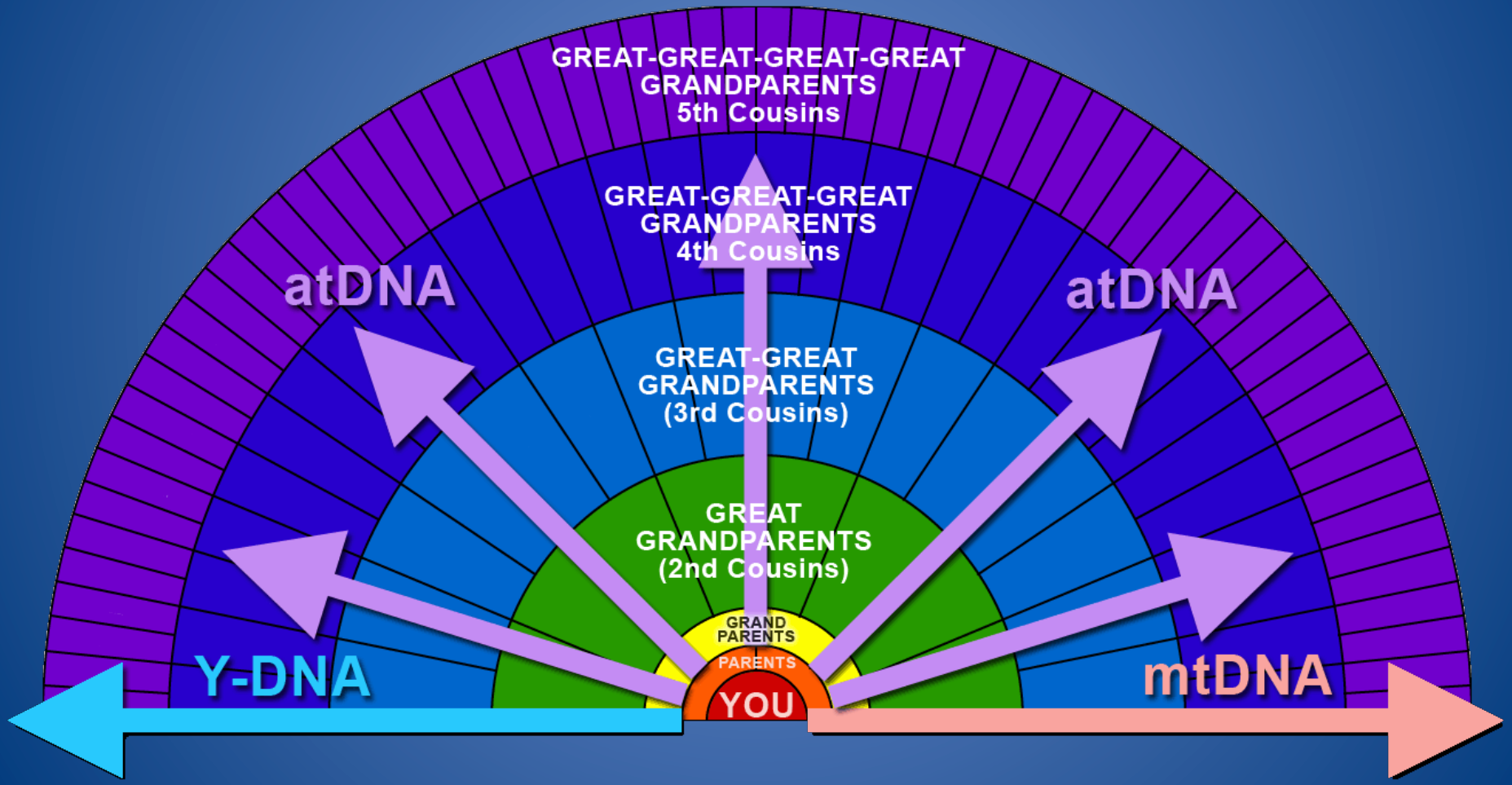


I Got My Autosomal Test Results... Now What?

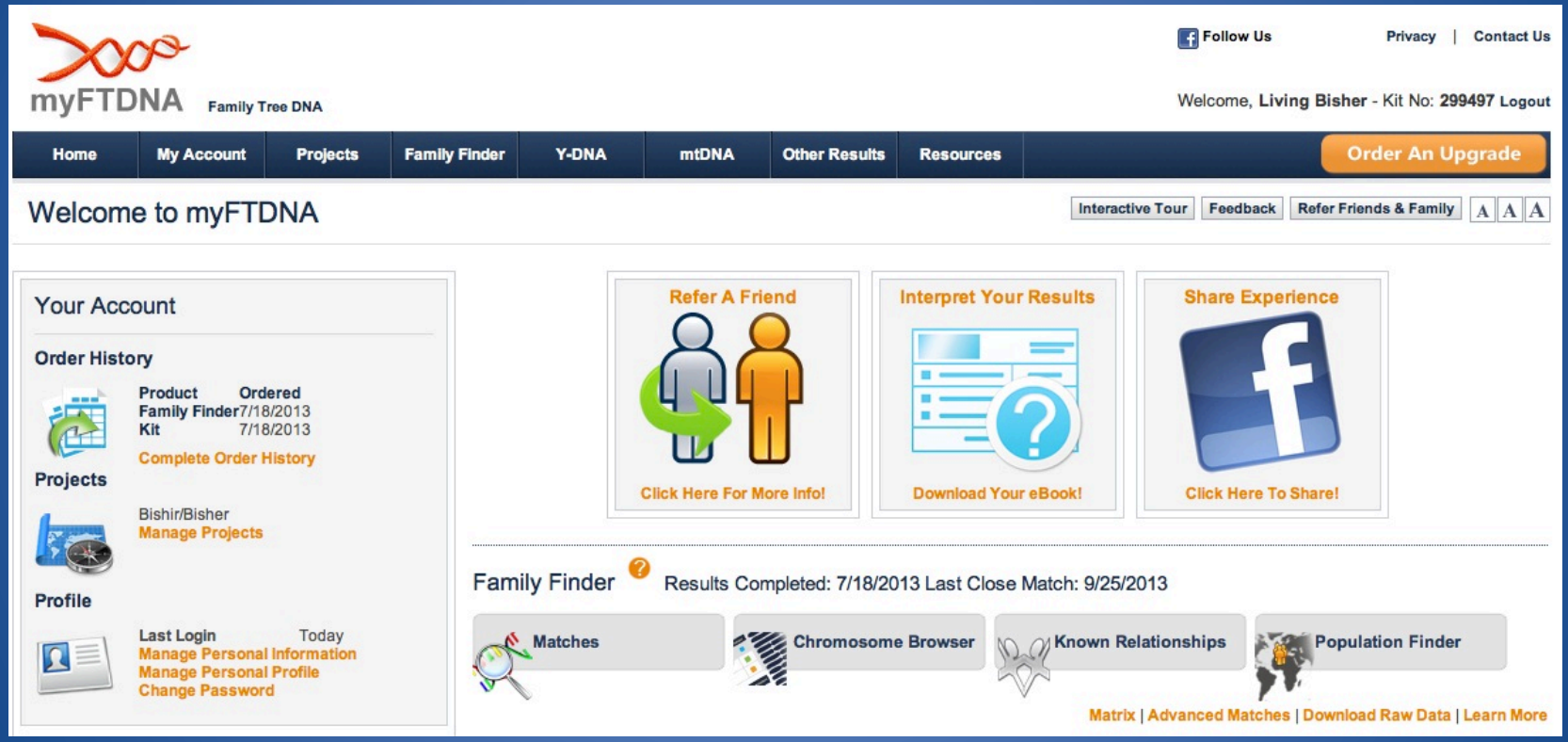
Using the Autosomal DNA Segment Analyzer (ADSA) to Visualize Your atDNA Matches

Don Worth
worth@ucla.edu

Genealogical Scope of DNA Tests

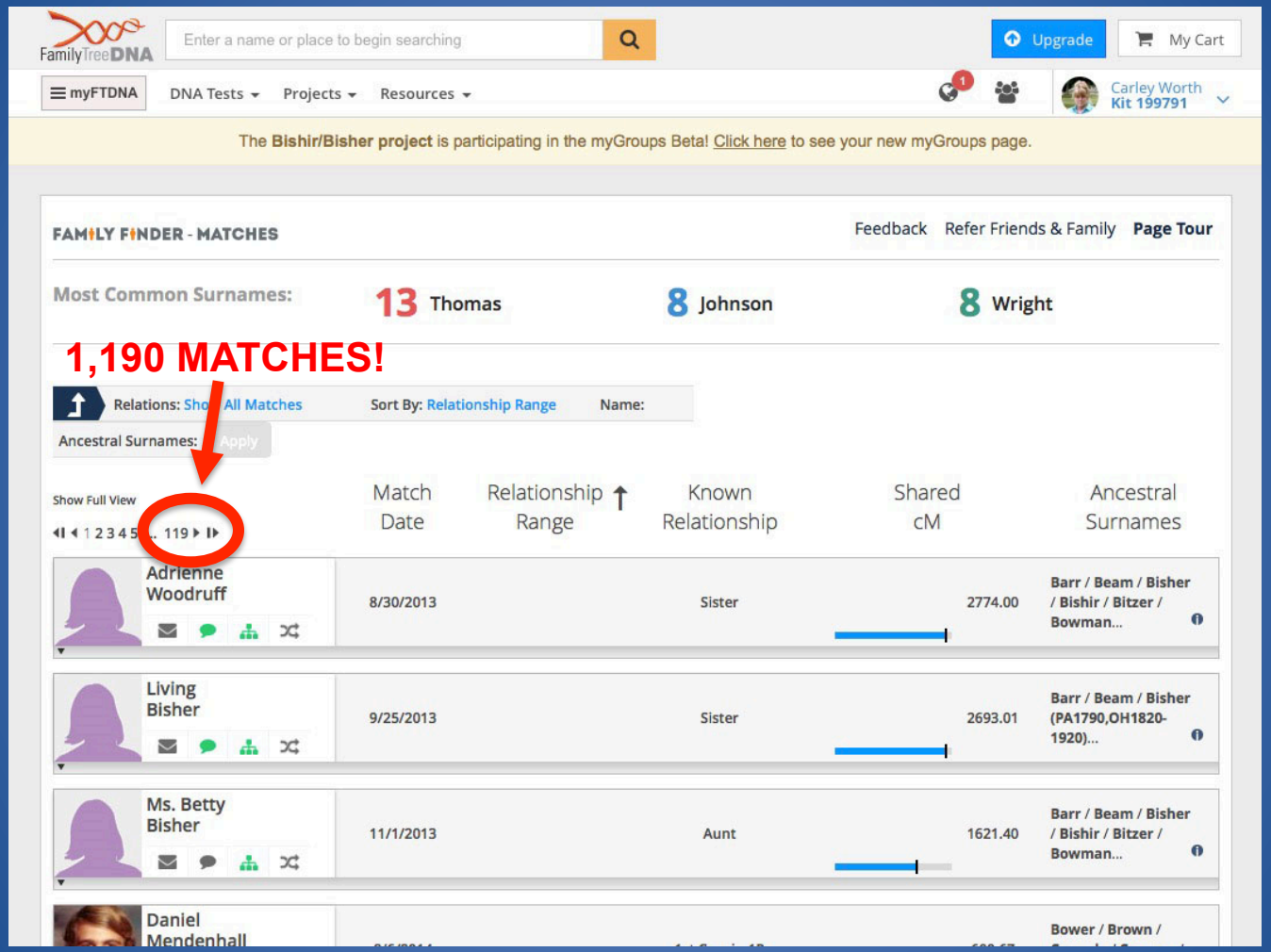


I just got my autosomal DNA test results back…



…But it's too complicated! I'm confused.

You could just email every match



But There's a Smarter Way…

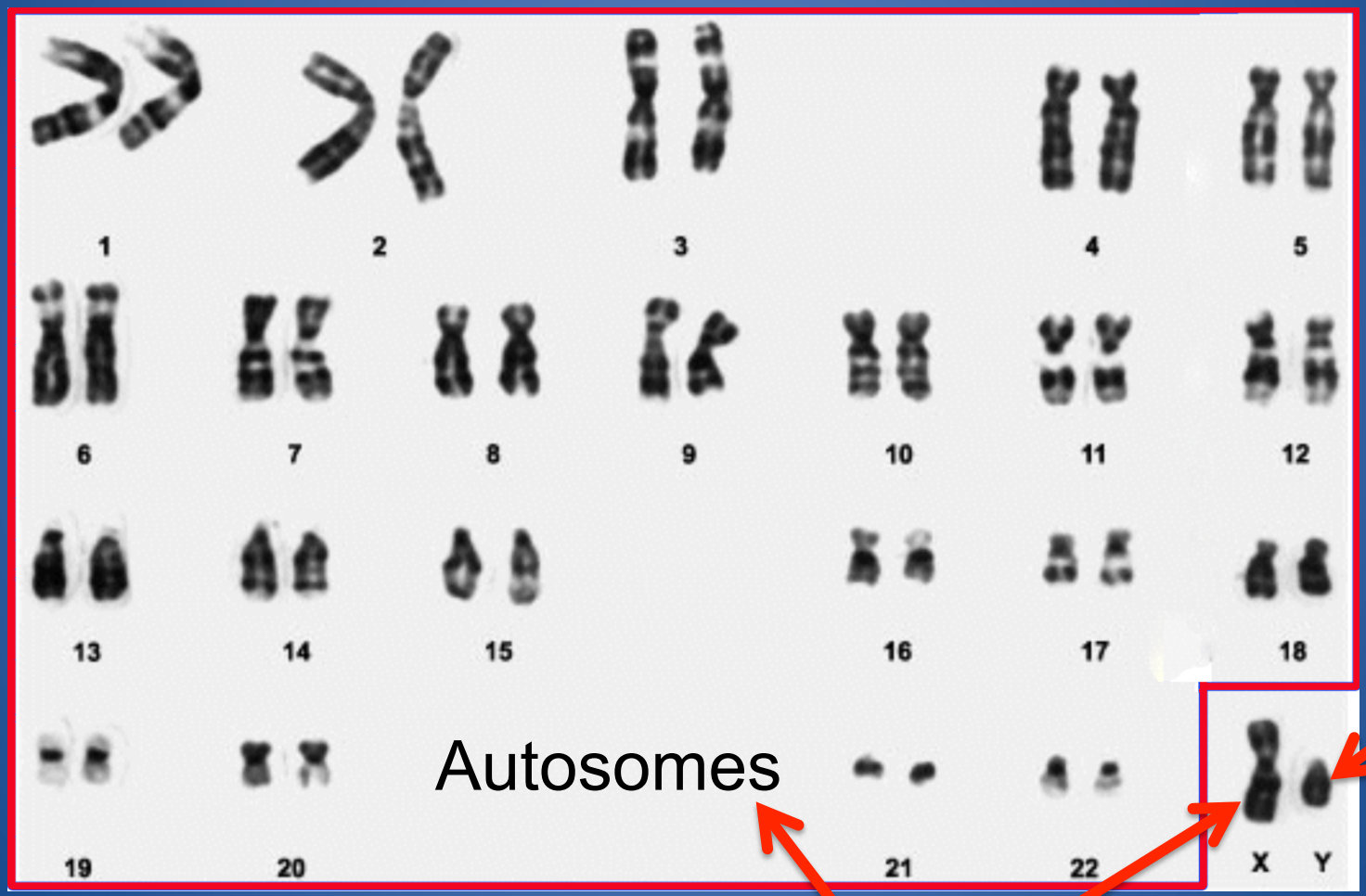
Triangulate!

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

- A TG is three or more people who share the same sequence of DNA at the same location on the same chromosome
  - Analyze your matches in batches (not one at a time)
  - Increase the likelihood 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

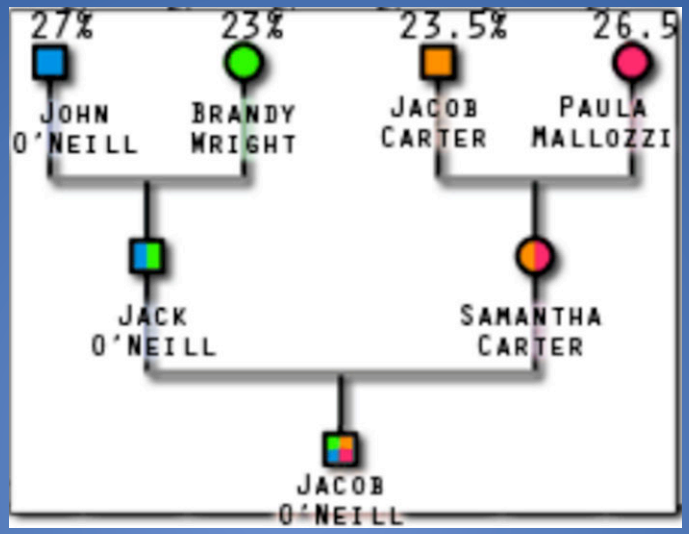
23 Chromosome Pairs

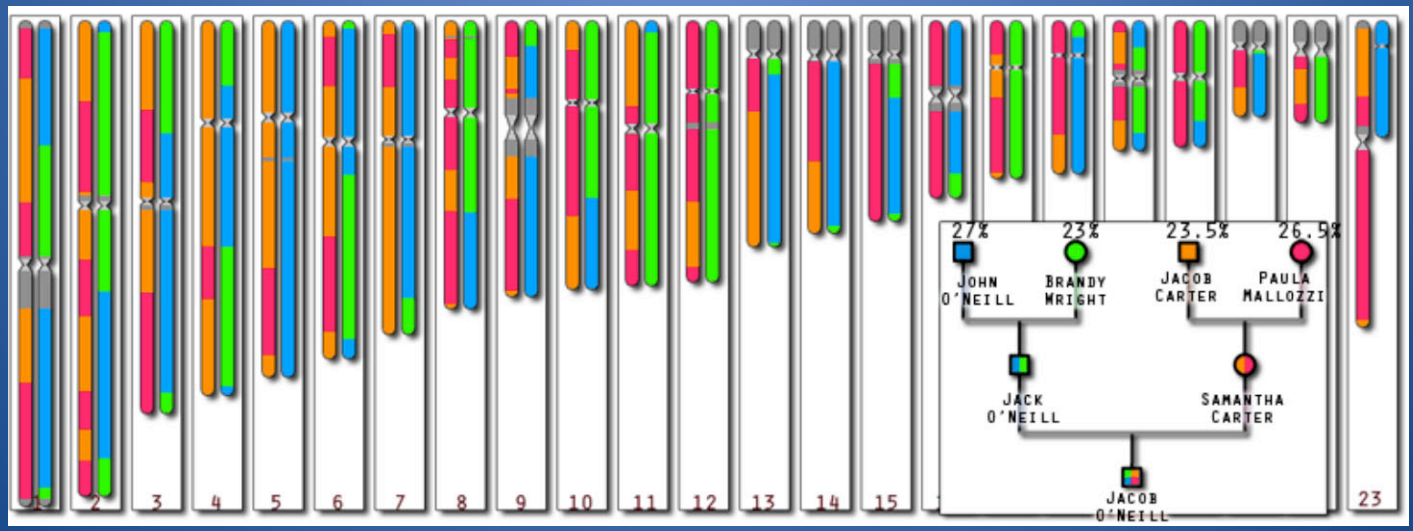
46 Chromosomes in all



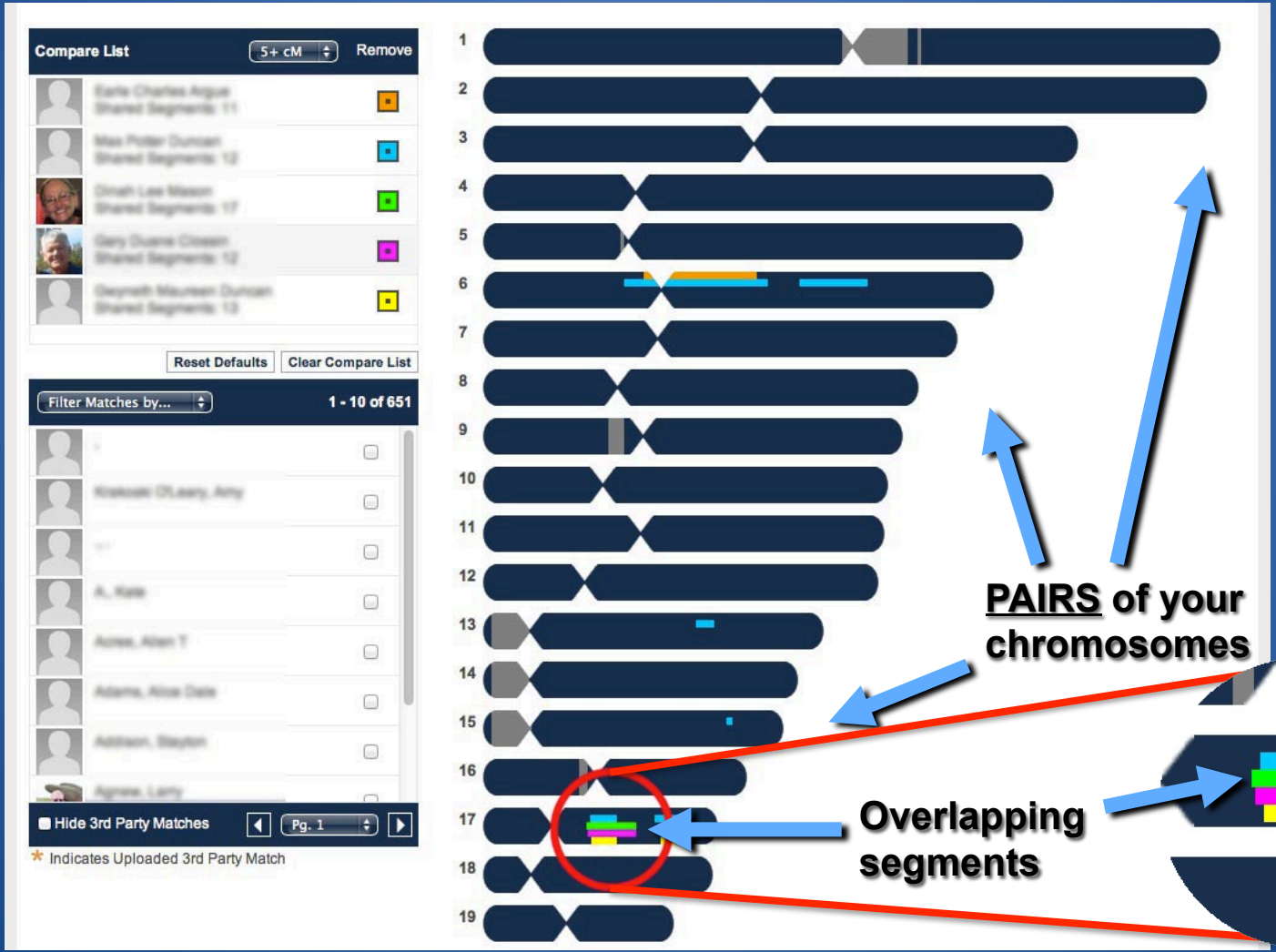
DNA Chopped Salad

http://www.dnainheritance.kahikatea.net/autosomal.html





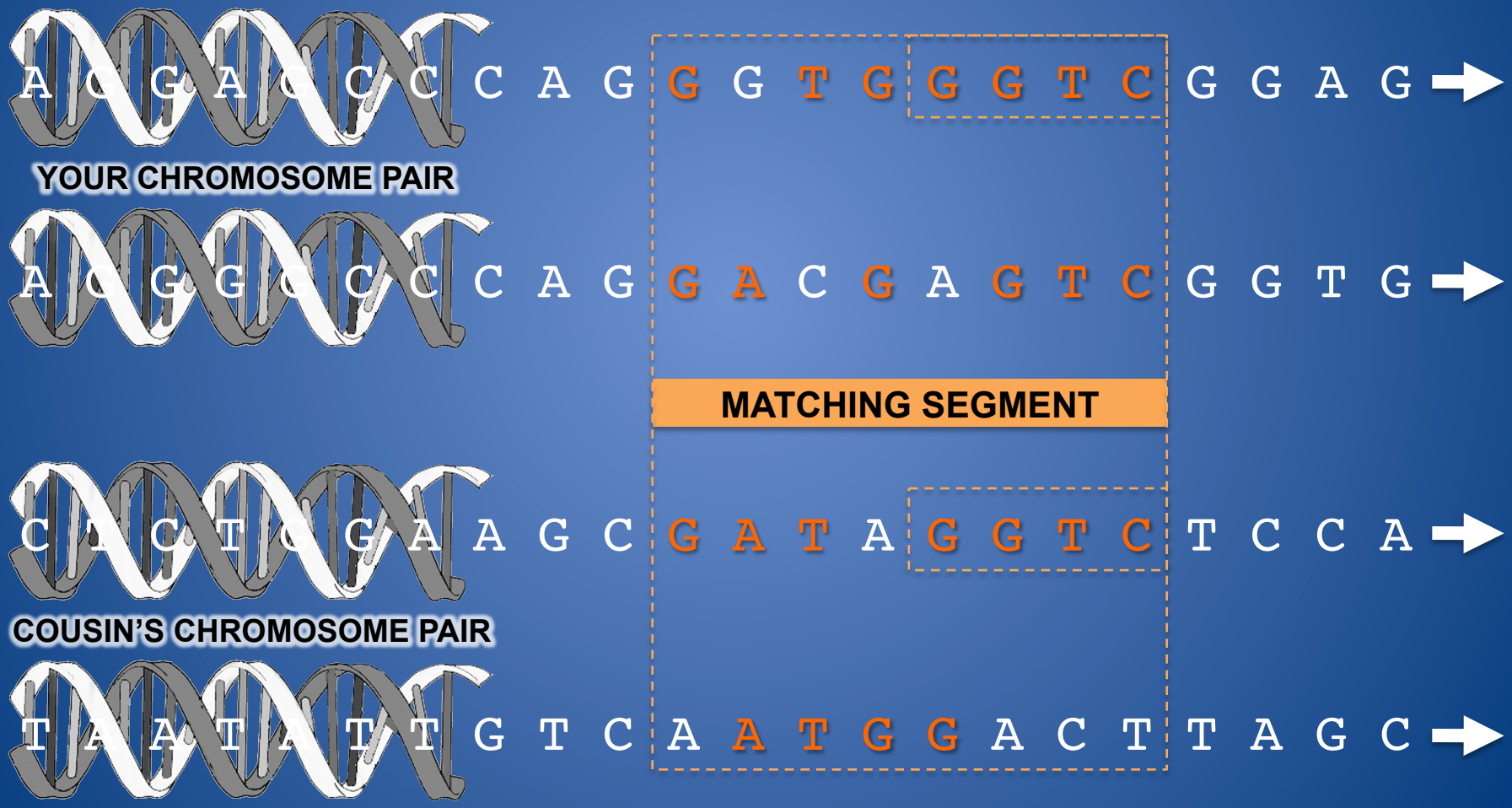
Chromosome Browser



FamilyTreeDNA's Chromosome Browser

What is a Matching Segment?

G = Guanine C = Cytosine A = Adenine T = Thymine

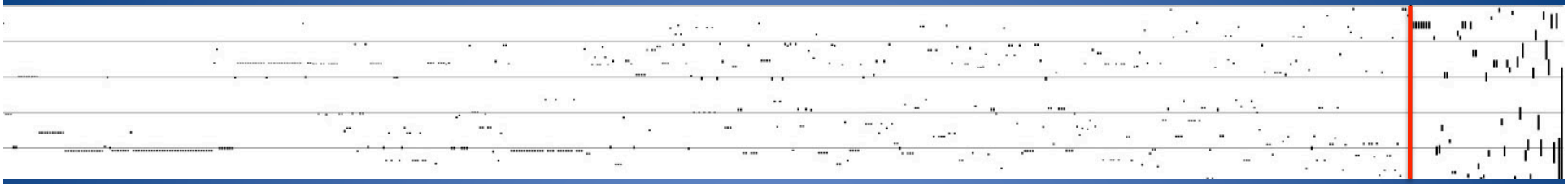


(http://belgiancatsnews.wordpress.com)

Triangulation Step by Step

1. Pick out a nice, long matching segment
2. Find all the matching segments that overlap it
3. Compare In-Common-With (ICW) matches
   To ensure everyone in the group is related to 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…

Picking Segments



1 cM

Don's segments on chromosome 1

8 cM

- cM (centiMorgans) is a measure of segment "length"
- Closer relatives have more & longer segments of matching DNA with you
- Identical By State (IBS) vs Identical By Descent (IBD)
- Most segments under 7 cM are IBS

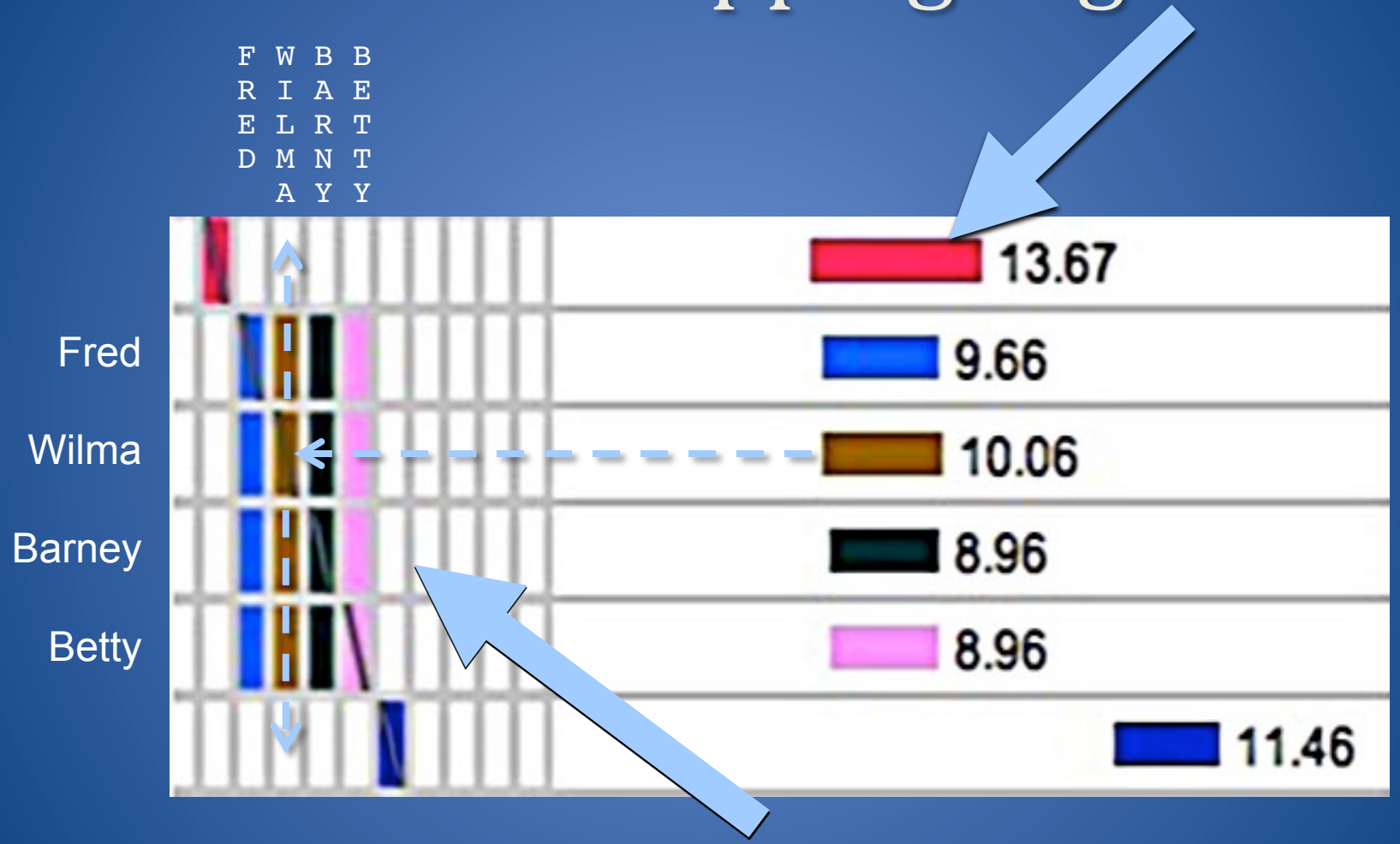
Matching Segment	% IBD	% IBS
15 cM	>99%	<1%
13 cM	99%	1%
12 cM	97%	3%
11 cM	90%	10%
10 cM	86%	14%
9 cM	80%	20%
8 cM	62%	38%
7 cM	42%	58%
6 cM	26%	74%
5 cM	14%	86%
4 cM	5%	95%
3 cM	1%	99%

ISOGG Wiki

I Suggest…

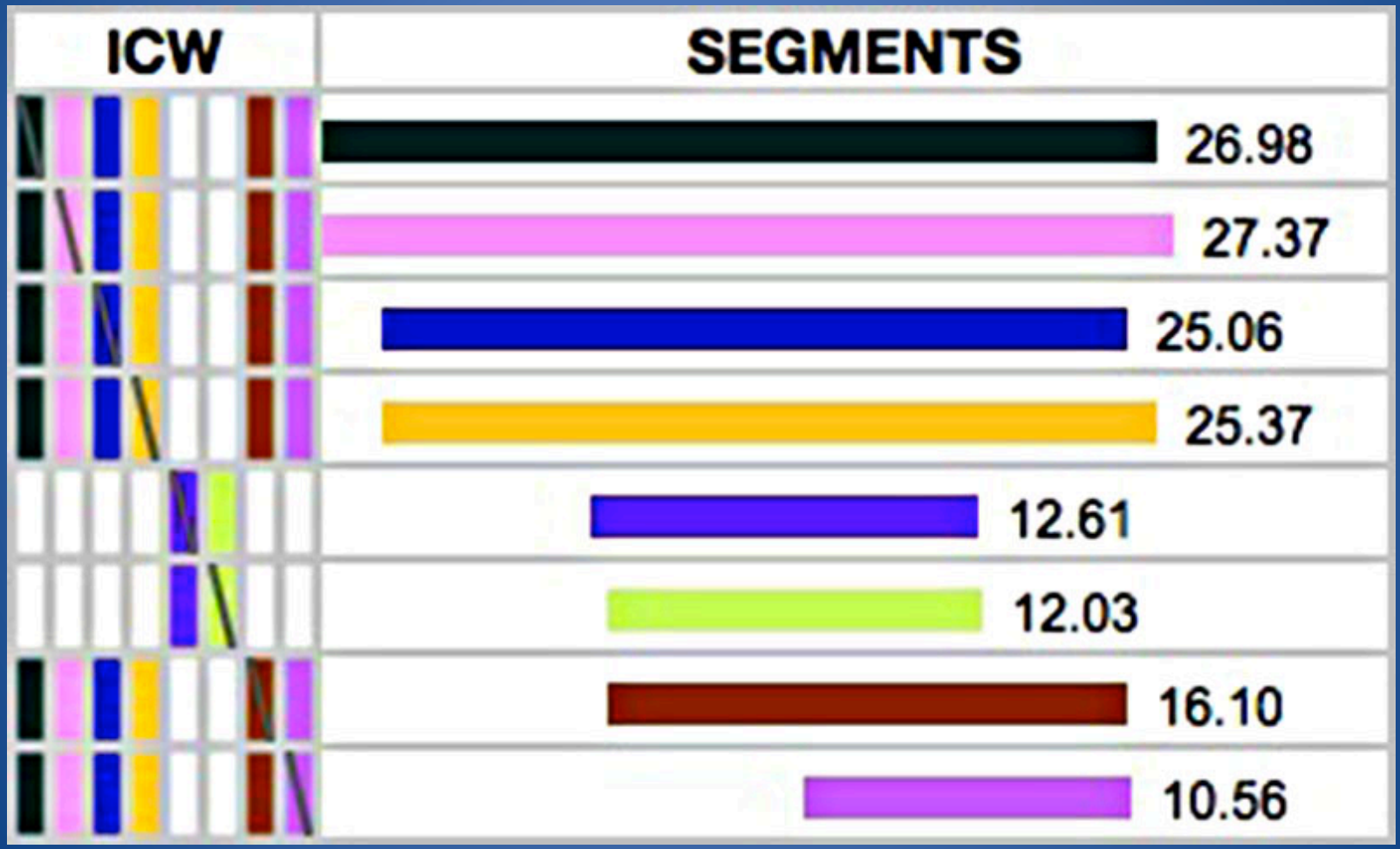
- Start with your longest segment
  - or a segment for your closest predicted relationship
  - or a longish segment with a surname of interest
- Examine short segments (< 10 cM) last, or as they appear in triangulated groups
  - Short segments are more likely to be IBS (non-IBD), but a short segment that is part of a TG is more likely IBD
  - Even if a short segment is IBD, it may be very hard to find the common ancestor
- Check out segments that are not in any TG too

Look For Overlapping Segments



And In-Common-With (ICW) Matches

Matches on Both Mom's & Dad's Chromosomes



Check Surnames For Clues

[redacted]

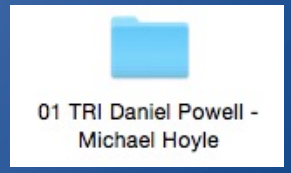
Matched 7/6/2012, Relationship: 4th Cousin - Remote Cousin
U4a2

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 [illegible] / Bateman (Chester, England?) / Cocklin (Marblehead, MA) / Wood (Ashford, CT) / Chapman (Ashford, CT) / [illegible]ennings/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 (eg. Ancestry, WikiTree, etc.)
  - Attach a saved copy of your ADSA report
- Stay organized:
  - A folder for each TG with the emails and files you've exchanged with group members



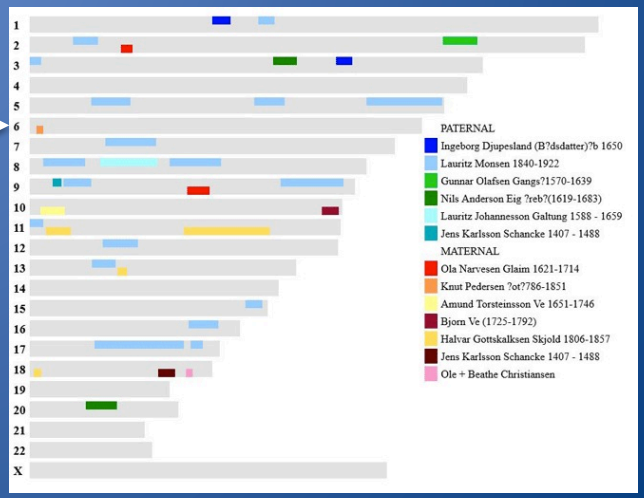
Stack The Deck

Test close relatives you know…

- Older Relatives First! (Parents, Aunts, Uncles)
  - Older generations give you more "reach"
  - Great for phasing, triangulation & to find more matches you don't have
- 1st or 2nd cousins
  - Can narrow search for common ancestors
- Siblings
  - Find matches you don't have & phasing

Stack The Deck

- Post your tree 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

Questions?

ADSA:

www.DNAgedcom.com/adsa

"How To" Manual (for new ADSA):

tinyurl.com/adsamanual

Kelly Wheaton's Intro to Genetic Genealogy:

tinyurl.com/dnabeginner

worth@ucla.edu

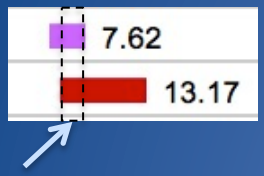
Stack The Deck

A lesson I learned the hard way…

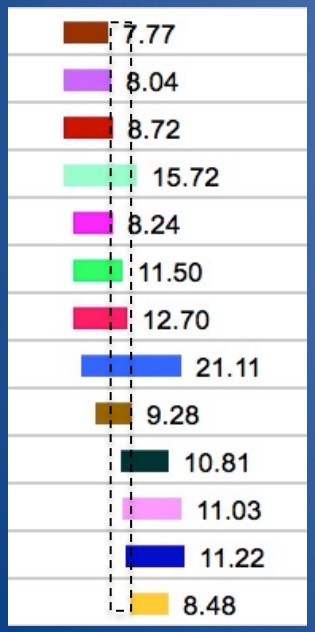
It's probably not worth investing in testing known 4th or 5th cousins

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%)

How Much Overlap?



Less than 7 cM?



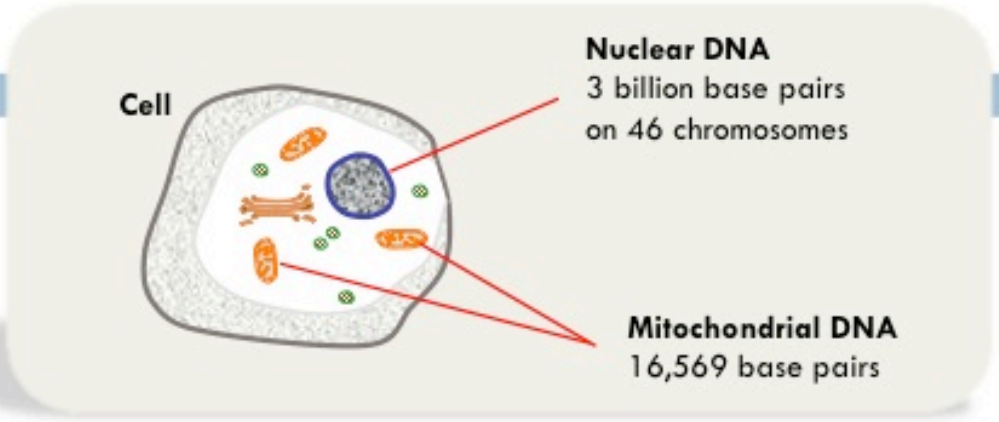
- You need enough overlap so that the overlap could be the reason for the ICW match between your matches
- If a segment belongs to two separate TGs, then they may actually form one big TG – even if earlier segments don't overlap later ones.

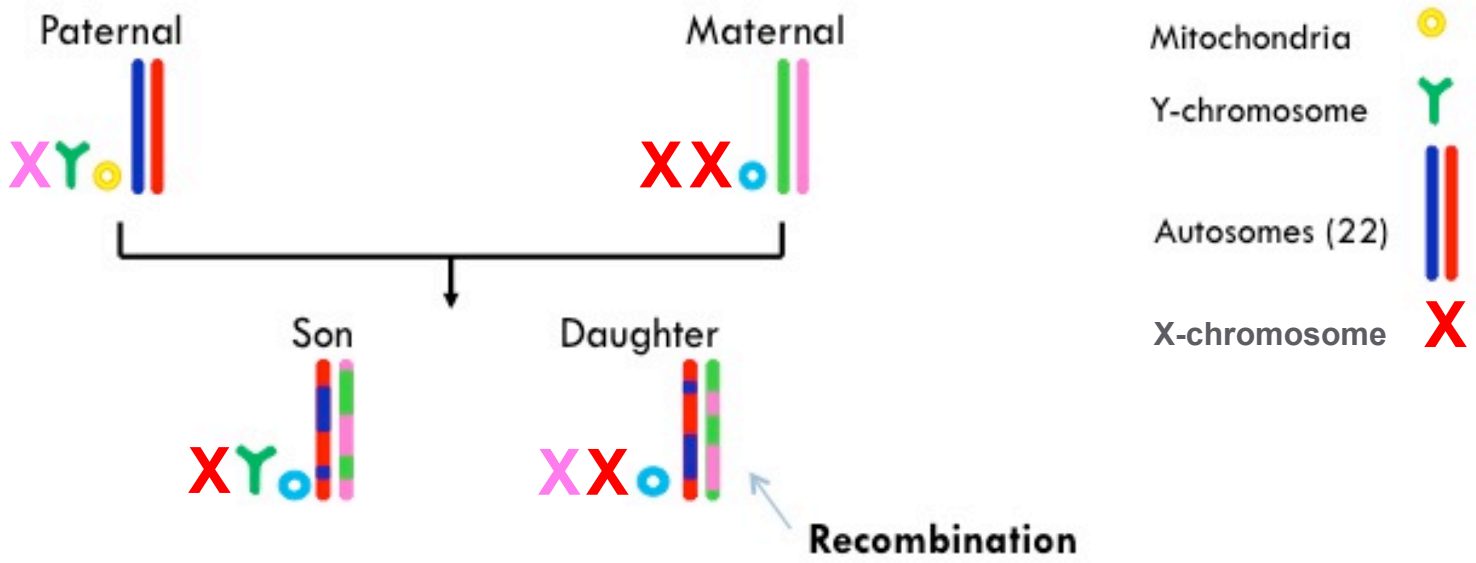
Genetic Genealogy Testing

Four kinds of tests

- Y-DNA
  Dad's-dad's-dad… going way, way back (can test males only) & SNP tests to zero in on haplogroup
- mtDNA
  Mom's-mom's-mom… going way, way back
- Autosomal DNA
  Any line but best up to 5 or 6 generations
  May include admixture (deep ancestry) & medical
- X-DNA
  Many lines but males don't get an X from dad
  Often included in Autosomal DNA test results

Location & inheritance of human DNA





Adapted from: Simon's DNA Musings, simonsoutherton.blogspot.com