A Deep Dive into Understanding Your DNA Results: What are the Odds?

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What is it?

"What are the Odds?" (WATO) is a free web-based tool designed to help you figure out how someone might fit into a known family tree:

- You might have a new match who is related to you and several members of your family. In this case you could use WATO to compare the likelihood that the match fits into different positions in your tree.
- Or perhaps you are an adoptee. Your DNA match list might reveal a set of links to a known family. With some work, you are able to put together a tree for this family. You can then use WATO to help figure out where you might fit into it.
- To use the tool, you just need the number of centimorgans (cM) shared with each match. No segment data is required, which means you can work with matches on Ancestry as well as other DNA websites.

How to get started

WATO works best when you have a specific research question, such as "Where might my new match Henry Adams fit into my tree?"

The tool is on the DNA Painter website at https://dnapainter.com/tools/probability

To use it you'll need:

- A group matches where you know how they are related to each other.
- An unknown person who matches these people, along with the cM amount with which they match each person
- No login is required to use WATO, but if you would like to share or save your tree for reference, you will need to register for a free DNA Painter account at https://dnapainter.com/account/register. Once logged in, you can save multiple trees.

Each tree is built from left to right via a simple web interface, with the furthest back common ancestors on the left, and their descendants on the right. To access actions for each person in the tree, simply hover over that person and a menu will appear.

If you would like feedback on your tree, you can click 'share', which will create a shareable read-only link to your research.

What do the scores mean?

- For each hypothesis, a score is calculated and printed to the screen.
- Any positive score means this hypothesis is considered possible. The scores are then calculated in comparison to the other hypotheses.
- So if you have only one hypothesis, your score will be either zero (not possible) or 1 (possible). For a better perspective, try adding more hypotheses via half-relationships and additional unknown siblings in order to explore all possibilities.

What are the benefits?

- WATO has a simple visual interface that can help clarify the generations and levels between matches.
- It can help to focus your research, ruling out certain lines, and allowing you to see where you could seek out more testers to solve your problem.

What else do I need to know?

WATO is a beta tool with some limitations that you should be aware of:

- The calculations are based on typical cM ranges for each given relationship, and cannot currently take account of endogamy, double or ¾ relationships.
- The tree interface can only have one couple as its root. Spouses are added within one node (e.g. Mary and Andrew) as opposed to separately.
- A separate non-graphical version exists for more complicated relationships. This is at https://dnapainter.com/tools/prob2

Links and resources

Leah Larkin's introduction to WATO

https://thednageek.com/science-the-heck-out-of-your-dna-part-7/

Video lecture at Genetic Genealogy Ireland by Andrew Millard, who developed the statistical model used in WATO

https://www.youtube.com/watch?v=Zf-Zeid6L2Y

What are the Odds? New help in finding birth parents by Ann Raymont

https://dnasleuth.wordpress.com/2018/08/01/what-are-the-odds-new-help-in-finding-birth-parents/

Facebook user group for WATO:

https://www.facebook.com/groups/WhatAretheOdds/