# The Tinder algorithm, explained

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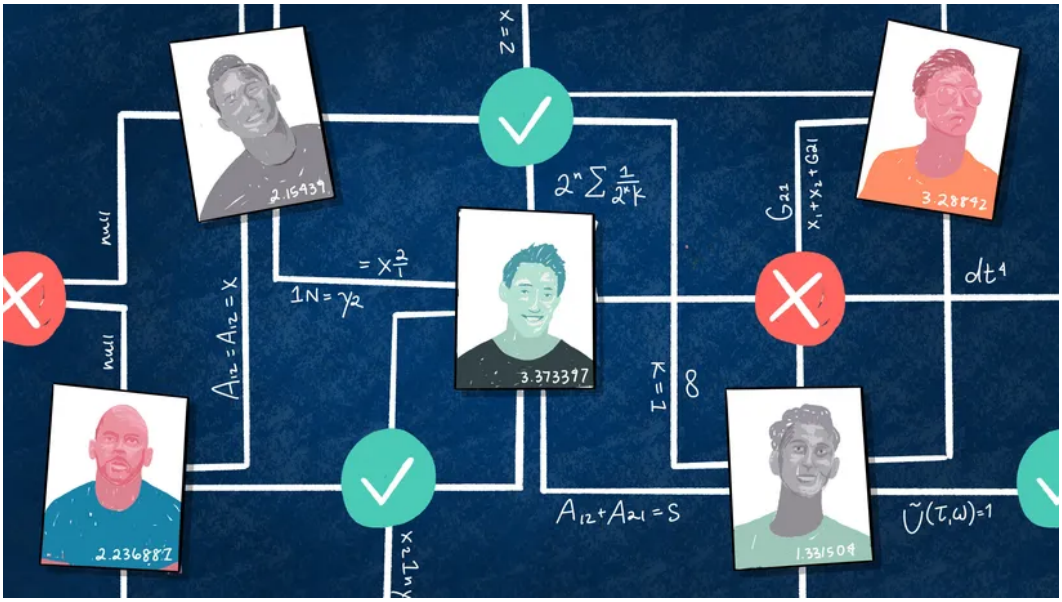
Kaitlyn Tiffany February 7, 2019




*Sarah Lawrence for Vox*

Some math-based advice for those still swiping.


If there's one thing I know about love, it's that people who don't find it have shorter life spans on average. Which means learning how the Tinder algorithm works is a matter of life and death, extrapolating slightly.

According to the Pew Research Center, a majority of Americans now consider dating apps a good way to meet someone; the previous stigma is gone. But in February 2016, at the time of Pew's survey, only 15 percent of American adults had actually used a dating app, which means acceptance of the tech and willingness to use the tech are disparate issues. On top of that, only 5 percent of people in marriages or committed relationships said their relationships began in an app. Which raises the question: Globally, more than 57 million people use Tinder — the biggest dating app — but do they know what they're doing?

They do not have to answer, as we're all doing our best. But if some information about how the Tinder algorithm works and what anyone of us can do to find love within its confines is helpful to them, then so be it.

The first step is to understand that Tinder is sorting its users with a fairly simple algorithm that can't consider very many factors beyond appearance and location. The second step is to understand that this doesn't mean that you're doomed, as years of scientific research have

confirmed attraction and romance as unchanging facts of human brain chemistry. The third is to take my advice, which is to listen to biological anthropologist Helen Fisher and never pursue more than nine dating app profiles at once. Here we go.

## The Tinder algorithm basics

A few years ago, Tinder let Fast Company reporter Austin Carr look at his "secret internal Tinder rating," and vaguely explained to him how the system worked. Essentially, the app used an Elo rating system, which is the same method used to calculate the skill levels of chess players: You rose in the ranks based on how many people swiped right on ("liked") you, but that was weighted based on who the swiper was. The more right swipes that person had, the more their right swipe on you meant for *your* score.

Tinder would then serve people with similar scores to each other more often, assuming that people whom the crowd had similar opinions of would be in approximately the same tier of what they called "desirability." (Tinder hasn't revealed the intricacies of its points system, but in chess, a newbie usually has a score of around 800 and a top-tier expert has anything from 2,400 up.) (Also, Tinder declined to comment for this story.)


Guests at Tinder's 2017 #BossLadyBrunch in Montauk, New York.
*Steven Henry/Getty Images*

In March 2019, Tinder published a blog post explaining that this Elo score was "old news" and outdated, paling in comparison to its new "cutting-edge technology." What that technology is exactly is explained only in broad terms, but it sounds like the Elo score

evolved once Tinder had enough users with enough user history to predict who would like whom, based solely on the ways users select many of the same profiles as other users who are similar to them, and the way one user's behavior can predict another's, without ranking people in an explicitly competitive way. (This is very similar to the process Hinge uses, explained further down, and maybe not a coincidence that Tinder's parent company, Match, acquired Hinge in February 2019.)

But it's hard to deny that the process still depends a lot on physical appearance. The app is constantly updated to allow people to put more photos on their profile, and to make photos display larger in the interface, and there is no real incentive to add much personal information. Most users keep bios brief, and some take advantage of Spotify and Instagram integrations that let them add more context without actually putting in any additional information themselves.

The algorithm accounts for other factors — primarily location and age preferences, the only biographical information that's actually required for a Tinder profile. At this point, as the company outlined, it can pair people based on their past swiping, e.g., if I swiped right on a bunch of people who were all also swiped right on by some other group of women, maybe I would like a few of the other people that those women saw and liked. Still, appearance is a big piece.

As you get closer and closer to the end of the reasonable selection of individuals in any dating app, the algorithm will start to recycle people you didn't like the first time. It will also, I know from personal experience, recycle people you have matched with and then unmatched later, or even people you have exchanged phone numbers with and then unmatched after a handful of truly "whatever" dates. Nick Saretzky, director of product at OkCupid, told me and Ashley Carman about this practice on the Verge podcast *Why'd You Push That Button* in October 2017. He explained:

> Hypothetically, if you were to swipe on enough thousands of people, you could go through everyone. [You're] going through people one at a time … you're talking about a line of people and we put the best options up front. It actually means that every time you swipe, the next choice should be a little bit worse of an option.
>
> So, the longer you're on an app, the worse the options get. You'll see Tinder, Bumble, OkCupid, we all do recycling. If you've passed on someone, eventually, someone you've said "no" to is a much better option than someone who's 1,000 or 10,000 people down the line.

Maybe you really did swipe left by accident the first time, in which case profile recycling is just an example of an unfeeling corporation doing something good by accident, by granting you the rare chance at a do-over in this life.

"“Every time you swipe, the next choice should be a little bit worse of an option”"

Or maybe you have truly run out of options and this will be a sort of uncomfortable way to find out — particularly unnerving because the faces of Tinder tend to blur together, and your mind can easily play tricks on you. Have I seen this brown-haired Matt before? Do I recognize that beachside cliff pic?

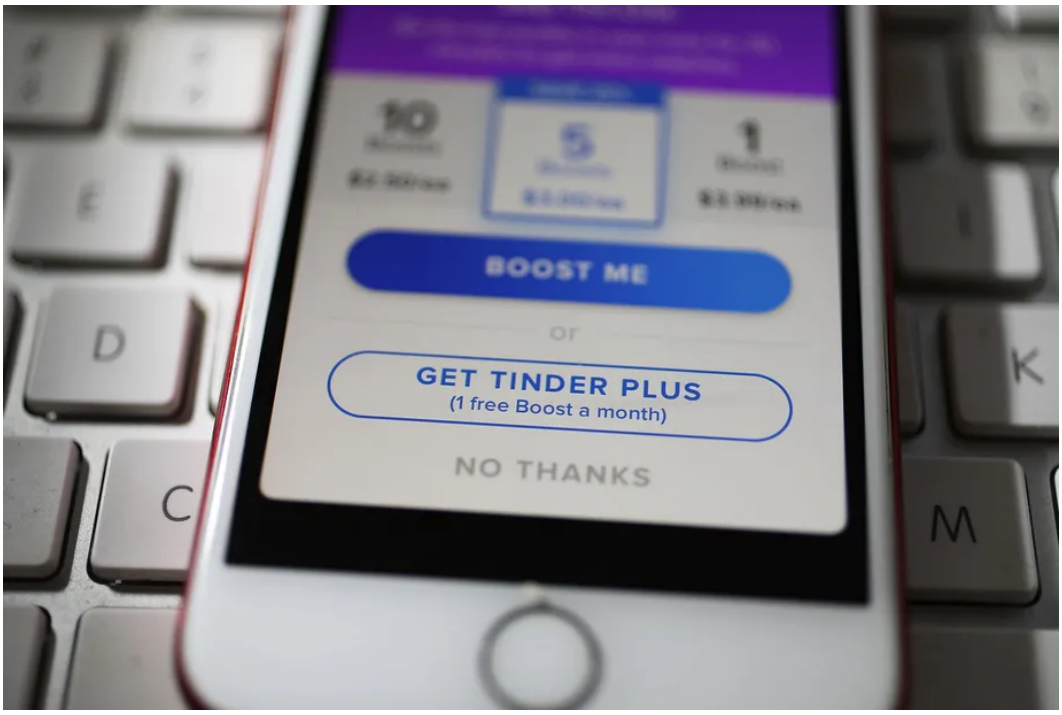
Don't despair, even though it's tempting and would obviously make sense.

## The secret rules of Super Likes and over-swiping

One of the more controversial Tinder features is the Super Like. Instead of just swiping right to quietly like someone — which they'll only discover if they also swipe right on you — you swipe up to *loudly* like someone. When they see your profile, it will have a big blue star on it so they know you already like them and that if they swipe right, you'll immediately match.

You get one per day for free, which you're supposed to use on someone whose profile really stands out. Tinder Plus ($9.99 a month) and Tinder Gold ($14.99 a month) users get five per day, and you can also buy extra Super Likes à la carte, for $1 each.

Tinder says that Super Likes triple your chances of getting a match, because they're flattering and express enthusiasm. There's no way to know if that's true. What we do know is that when you Super Like someone, Tinder has to set the algorithm aside for a minute. It's obligated to push your card closer to the top of the pile of the person you Super Liked — because you're not going to keep spending money on Super Likes if they never work — and guarantee that they see it. This doesn't mean that you'll get a match, but it does mean that a person who has a higher "desirability" score will be provided with the very basic information that you exist.




Tinder Boosts make you the most popular person in your area for a few minutes, but come with a price tag.
*Getty Images*

We can also guess that the algorithm rewards pickiness and disincentivizes people to swipe right too much. You're limited to 100 right swipes per day in Tinder, to make sure you're actually looking at profiles and not just spamming everyone to rack up random matches. Tinder obviously cares about making matches, but it cares more about the app feeling useful and the matches feeling real — as in, resulting in conversation and, eventually, dates. It tracks when users exchange phone numbers and can pretty much tell which accounts are being used to make real-life connections and which are used to boost the ego of an over-swiper. If you get too swipe-happy, you may notice your number of matches goes down, as Tinder serves your profile to fewer other users.

I don't *think* you can get in trouble for one of my favorite pastimes, which is lightly tricking my Tinder location to figure out which boys from my high school would date me now. But maybe! (Quick tip: If you visit your hometown, don't do any swiping while you're there, but log in when you're back to your normal location — whoever right-swiped you during your visit should show up. Left-swipers or non-swipers won't because the app's no longer pulling from that location.)

"There are a lot of conspiracy theories about Tinder "crippling" the standard, free version of the app"
There are a lot of conspiracy theories about Tinder "crippling" the standard, free version of the app and making it basically unusable unless you pay for a premium account or add-ons, like extra Super Likes and Boosts (the option to serve your profile to an increased number of people in your area for a limited amount of time). There is also, unfortunately, a subreddit

specifically for discussing the challenges of Tinder, in which guys write things like, “The trick: for every girl you like, reject 5 girls.” And, “I installed tinder 6 days ago, ZERO matches and trust me, im not ugly, im not fucking brad pitt but what the fuck?? anyways i installed a new account with a random guy from instagram, muscular and beautiful, still ZERO matches …”

I can’t speak to whether Tinder is actually stacking the deck against these men, but I will point out that some reports put the ratio at 62-38 men to women on the app. And that ratio changes based on geography — your match rate depends a lot on your local population dynamics.

## How the other swiping apps and algorithms are different (even though Tinder’s is the best)

Of course, Tinder’s not the only dating app, and others have their own mathematical systems for pairing people off.

Hinge — the “relationship app” with profiles more robust than Tinder’s but far less detailed than something like OkCupid or eHarmony — claims to use a special type of machine learning to predict your taste and serve you a daily “Most Compatible” option. It supposedly uses the Gale-Shapley algorithm, which was created in 1962 by two economists who wanted to prove that any pool of people could be sifted into stable marriages. But Hinge mostly just looks for patterns in who its users have liked or rejected, then compares those patterns to the patterns of other users. Not so different from Tinder. Bumble, the swiping app that only lets women message first, is very close-lipped about its algorithm, possibly because it’s also very similar to Tinder.

The League — an exclusive dating app that requires you to apply using your LinkedIn — shows profiles to more people depending on how well their profile fits the most popular preferences. The people who like you are arranged into a “heart queue,” in order of how likely the algorithm thinks it is that you will like them back. In that way, this algorithm is also similar to Tinder’s. To jump to the front of the line, League users can make a Power Move, which is comparable to a Super Like.

"Tinder may come off as a superficial hot-or-not app, but there’s no proof that a more complicated matchmaking algorithm is a better one"
None of the swiping apps purport to be as scientific as the original online dating services, like Match, eHarmony, or OkCupid, which require in-depth profiles and ask users to answer questions about religion, sex, politics, lifestyle choices, and other highly personal topics. This can make Tinder and its ilk read as insufficient hot-or-not-style apps, but it’s useful to remember that there’s no proof that a more complicated matchmaking algorithm is a better one. In fact, there’s a lot of proof that it’s not.

Sociologist Kevin Lewis told JStor in 2016, “OkCupid prides itself on its algorithm, but the site basically has no clue whether a higher match percentage actually correlates with relationship success … none of these sites really has any idea what they’re doing — otherwise they’d have a monopoly on the market.”

In a (pre-Tinder) 2012 study, a team of researchers led by Northwestern University’s Eli J. Finkel examined whether dating apps were living up to their core promises. First, they found that dating apps *do* fulfill their promise to give you access to more people than you would meet in your everyday life. Second, they found that dating apps in some way make it easier to communicate with those people. And third, they found that none of the dating apps could actually do a better job matching people than the randomness of the universe could. The paper is decidedly pro-dating app, and the authors write that online dating “has enormous potential to ameliorate what is for many people a time-consuming and often frustrating activity.” But algorithms? That’s not the useful part.

This study, if I may say, is very beautiful. In arguing that no algorithm could ever predict the success of a relationship, the authors point out that the entire body of research on intimate relationships “suggests that there are inherent limits to how well the success of a relationship between two individuals can be predicted in advance of their awareness of each other.” That’s because, they write, the strongest predictors of whether a relationship will last come from “the way they respond to unpredictable and uncontrollable events that have not yet happened.” The chaos of life! It bends us all in strange ways! Hopefully toward each other — to kiss! (Forever!)

The authors conclude: “The best-established predictors of how a romantic relationship will develop can be known only after the relationship begins.” Oh, my god, and happy Valentine’s Day.

"The chaos of life! It bends us all in strange ways! Hopefully toward each other — to kiss!" Later, in a 2015 opinion piece for the New York Times, Finkel argued that Tinder’s superficiality actually made it better than all the other so-called matchmaking apps.

“Yes, Tinder is superficial,” he writes. “It doesn’t let people browse profiles to find compatible partners, and it doesn’t claim to possess an algorithm that can find your soul mate. But this approach is at least honest and avoids the errors committed by more traditional approaches to online dating.”

Superficiality, he argues, is the best thing about Tinder. It makes the process of matching and talking and meeting move along much faster, and is, in that way, a lot like a meet-cute in the post office or at a bar. It’s not making promises it can’t keep.

## So what do you do about it?

At a debate I attended last February, Helen Fisher — a senior research fellow in biological anthropology at the Kinsey Institute and the chief scientific adviser for Match.com, which is owned by the same parent company as Tinder — argued that dating apps can do nothing to change the basic brain chemistry of romance. It's pointless to argue whether an algorithm can make for better matches and relationships, she claimed.

"The biggest problem is cognitive overload," she said. "The brain is not well built to choose between hundreds or thousands of alternatives." She recommended that anyone using a dating app should stop swiping as soon as they have nine matches — the highest number of choices our brain is equipped to deal with at one time.

Once you sift through those and winnow out the duds, you should be left with a few solid options. If not, go back to swiping but stop again at nine. Nine is the magic number! Do not forget about this! You will drive yourself batty if you, like a friend of mine who will go unnamed, allow yourself to rack up 622 Tinder matches.

To sum up: Don't over-swipe (only swipe if you're really interested), don't keep going once you have a reasonable number of options to start messaging, and don't worry too much about your "desirability" rating other than by doing the best you can to have a full, informative profile with lots of clear photos. Don't count too much on Super Likes, because they're mostly a moneymaking endeavor. Do take a lap and try out a different app if you start seeing recycled profiles. Please remember that there is no such thing as good relationship advice, and even though Tinder's algorithm literally understands love as a zero-sum game, science still says it's unpredictable.

**Update March 18, 2019:** This article was updated to add information from a Tinder blog post, explaining that its algorithm was no longer reliant on an Elo scoring system.