

## Mate Search

Mate search, one of the chief activities of humans, interacts in interesting ways with modern technology. Sexual norms and behavior have changed a great deal over the past century, in part due to technological progress in contraception; has the result been to make the project of finding a mate easier or harder? Computers, especially networked computers, can gather and analyze enormous quantities of data. How best can they be used to improve on realspace search strategies?

## Dating Apps

Subscribers to OKCupid answer questions about themselves, if they wish many questions, and search the answers of other subscribers to find someone who looks like a good fit; other dating apps do essentially the same thing, with differences in details. That lets you search a much larger number of potential partners than you would encounter in realspace,<sup>1</sup> with part of the work of identifying ones of interest done by the computer. Since the information you are searching is provided by the potential partners, it may not be entirely accurate: the pictures displayed are selected to flatter and I am told that men generally add a few inches to their height. Deception is possible in realspace as well, of course; whether a man is married is not readily discovered by inspection, although a woman can check her date's ring finger for evidence that he usually wears a wedding ring. Height and looks are more readily observable.

Most dating apps let you filter by geographical area, age, gender and other characteristics. Additional filtering can be done by the choice of which dating app to use, one for Christians who want to marry Christians (Christian Mingle), Jews who want to marry Jews (Jdate), old people (OurTime or Silver Singles), individuals looking for casual sex (Tinder), interested in marriage (Match, eHarmony), looking for a same-sex partner (Her, Adam4Adam), ...<sup>2</sup>

Of course, some filters are available for realspace mate search as well. Joining a political movement, becoming involved in a hobby, entering a profession, all put you in contact with potential partners with whom you have something in common. A student at Harvard or Vassar is surrounded by others who have passed the same entrance filter, making a fit much more likely than with random pairing. That makes computerized search less necessary — and may be one of the major functions of colleges and universities.

Few of us will ever again walk into a dining hall filled with 100 interesting members of the opposite sex of roughly the same age. (Edward Glaeser)<sup>3</sup>

By the same logic, computer dating is particularly useful for people for whom suitable partners are scarce, so unlikely to be encountered at random, such as someone looking for a same-sex partner. The fraction of same-sex couples that originated with an online meeting is much larger than the

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<sup>1</sup> We are used doing mate search for ourselves, but in a society where contact between single men and women is strictly limited the search for a bride may be done by the a man's mother and sister. In Saudi Arabia, which is such a society, the process is simplified by the fact that endogamy within the clan (*Akila*) sharply reduces the number of candidates.

<sup>2</sup> Apps listed are examples, not recommendations. I have not used any of them, and by the time this is published some may have changed their specialty or vanished entirely.

<sup>3</sup> Edward Glaeser, "[Princeton's Marriage Market Theory Worked for Me.](#)"

fraction of heterosexual couples that did.<sup>4</sup> A similar pattern holds for participants in another thin market, couples formed at an age by which most potential partners were married.

For a computer program pairing people up, the obvious approach is to look for pairs each of whose self-description fits what the other says he is looking for. One problem is that people may not know what they want, or at least what they can hope to get. Another is that self-descriptions are not always accurate, since most of us have a biased view of our own faults and virtues. And even if my self-view is accurate, my objective is to attract partners. I may not think that telling the truth, the whole truth, and all of the truth is the best way of doing so.

Of course, what I want to attract are not just partners but the right partners. If I am looking for a wife, a woman who is going to break up with me after she discovers things I left out of my profile is a waste of my time as well as hers. That is less of an issue for someone looking for casual sex. If that is your objective but you suspect it is not the objective of the women you are interested in, there is an obvious incentive to lie about your intentions. The male strategy of seduce and abandon has been familiar in the realspace context for a very long time.

Instead of believing people about what they are and what they want, it might make more sense for an intermediary to figure out what characteristics — in the computer context, what claimed characteristics — work well together. The realspace version is the marriage broker, the *shadchen*. More common in the past, some still exist in modern day America, mostly in specialized marriage markets — Orthodox Jews, Indian Americans, Chinese, Japanese, well off professionals.<sup>5</sup>

For most of us it is done more informally. A colleague's wife suggests that there are a lot of nice girls at folk dancing. I go, despite not being a dancer, and meet the woman I have now been married to for almost forty years. I ask the wife of my married son, a perceptive woman who knows lots of people, if she can suggest anyone my single son or single daughter would get along with, and with luck she comes up with someone — although not yet.

A sufficiently clever algorithm, like a sufficiently competent matchmaker, will match people not by what they say they want but by what predicts a good fit. The dating program, unlike the friend or the *shadchen*, only knows what the customer tells it, although that might change as more and more information becomes available online and searchable. It can, however, observe and analyze a much larger population. One approach is to rely on theory. A more interesting alternative is to use the data generated by the app to figure out who makes a good fit with whom.

Imagine a dating app one of whose terms is that, after your first date with someone met online, you report whether things went well or badly, with further reports after later dates and a final one after you either give up on each other or decide on a long-term relationship. The program uses that information to figure out what characteristics, defined by what each subscriber says he is and wants, predict a successful match. The outcome of my date with someone with a given set of characteristics is evidence of the likely outcome of other dates with other women for me, but also for other men similar to me.<sup>6</sup>

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<sup>4</sup> [“Searching for a Mate: The Rise of the Internet as a Social Intermediary,”](#) Michael J. Rosenfeld and Reuben J. Thomas, *American Sociological Review* 77(4): 523-547, 2012

<sup>5</sup> One of the latter that advertises its services in airline magazines is [“It’s Just Lunch.”](#)

<sup>6</sup> I first came up with this idea after hearing a talk on multi-dimensional voting theory, matching the positions of voters as shown by who they vote for with the positions of politicians as shown by who votes for them. My idea at the time

One commenter on my blog reported what might be a weak version of my approach in a real dating app:

Today, if you disable your OkCupid account, you are prompted to give a reason. One of the options is "I met someone on OkCupid." If you select that option, it will then ask you if it's one of the people you've exchanged messages with lately, along with their pictures.

So perhaps they are using that data as you predict. The App also knows when you sign on again, i.e. when you are single again.

The same commenter pointed out some advantages and disadvantages of online dating that had not occurred to me.

the first main advantage of more dating activity moving online is that it's physically safe to screen out bad/unwelcome messages. You just delete the message and block the person and that's it. If you romantically reject a man in person, there's a small but real chance they're another Elliot Rodgers in the making.

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The flip side of that benefit is reducing false-positive date requests (asking someone out when they don't want you to). If you match with someone online, you know that they are:

- A) single
- B) potentially interested in you
- C) Open to being asked out on a date.

...

The main thing lost from online dating, IMO, is you don't have whisper networks/gossip. As they say, on the internet, nobody knows you're a dog, so if a man's college classmates all think he's a creep, if he can write a nice message, you don't know that.

### **Hacking Data Apps**

If you are single and would rather not be I cannot offer any help from direct experience, since my mate search ended when dating apps were still in their infancy. But I can at least point you at advice by others.

One source is a [Ted Talk](#) by Amy Webb. The early part, describing how she estimated the number of potential husbands in the city of Philadelphia (35), reminded me of a similar calculation I did more than forty years ago. My much smaller pool was Blacksberg, the location of Virginia Polytechnic Institute, where I was an assistant professor recently divorced and the woman I am now married to a graduate student. I concluded that the number of women I would have to go out with at least once to eliminate as possible mates was larger than the number I was likely to go out with in any reasonable length of time — possibly I was less picky than Ms Webb. It followed that

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was to use the approach to match readers with books they would like, but matching people with partners they might like would be an even more valuable application.

the important constraint was not the size of the pool to be searched but my approach to searching it, that I needed to do a better job of locating good candidates. The best approach I could think of at the time was to expand my non-romantic social network and use it to troll the pool. That led me to the suggestion by a colleague's wife which in turn led to a successful outcome to my search. Thinking over the odds later, after estimating that the woman I married was about a one in ten thousand catch, I concluded that I had been very lucky.

Amy Webb goes on to describe creating a formula to rank potential dates, discovering that none of the men who fit it wanted to date her, constructing ten fake male profiles on OKCupid designed to be the sort of men she was looking for and seeing what women they attracted. While that gave her information about her competition it told her nothing at all about what sort of women her ideal man would be attracted to, which would seem to be the essential question. That made me wonder why she didn't construct fake female profiles instead, see which ones worked best, and tweak hers accordingly.

She did, however, end up with a husband.

More interesting is a piece titled "[How a Math Genius Hacked OK Cupid to Find True Love.](#)" Chris McKinlay was a doctoral candidate in math at UCLA, probably not a genius but clearly an enthusiast, with access to a lot of computing power. He data mined OK Cupid, used statistical techniques to analyze data on 20,000 women, clustered them on the basis of their questions and answers, and identified the cluster that looked like the sort of women he was interested in. He then data mined that cluster to figure out what they were like, rewrote his bio to emphasize features that would appeal to them, and tweaked his profile to answer questions they appeared interested in. After doing all that, he ran a search of women in Los Angeles sorted by how well their profiles matched his. OKCupid users are notified when someone visits their page, giving them a chance to respond, so he wrote a computer program to visit the pages of the high scorers — a thousand a day.

It took more than fifty dates to find one that worked. They are now married.

He was not lying to the women he wanted to date but he was reporting only those characteristics of his that he thought would appeal to them, answering only questions where his true answer fit theirs. Whether that was the right amount of honesty for his purposes depends on the tradeoff between quantity and quality of dates. A woman who would date him on the basis of his profile but dump him after a few dates was a waste of his time, which is an argument for showing the bad as well as the good in advance. On the other hand, the information from OKCupid, good and bad, would not be enough for a final judgement, and the more women willing to date him the more chances he would have to improve on it.

As it turned out, he ended up with more women willing to date him than he had time to date, which suggests that he would have been better off being a little more honest. He would still have had plenty of dates, and he might have found what he was looking for after thirty instead of fifty.

A third online account of gaming OK Cupid, by someone posting as Jacob Putanimit, is titled "Dating: a Research Journal."<sup>7</sup> The author started by finding, on the OKCupid site, the formula the program used to calculate the match percentage between two people, based on how important you said that each question you answered was and how you answered it. It turned out that whether someone agrees with you on your "very important" questions, and you with her on hers, almost

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<sup>7</sup> [Part 1](#), [Part 1.5](#), [Part 3](#). The interesting stuff is in the second part.

entirely determined the match percentage. To raise your match percentage with everyone you might be interested in:

you can probably find a few unequivocal questions that **almost everyone** in your relevant dating pool will answer the same way. For me, it's things like *How many children do you have? Is homosexuality a sin? Are you racist? Do you put more weight in science or faith?* and the horrifying *Would you sabotage contraceptives to have kids even though your mate doesn't want kids?*

Marking a bunch of those as “very important” and giving the obvious answers raises your match percentage with almost everyone. Marking questions that you care a lot about as “very important” lowers your match percentage with women you probably don't want to date. Marking all the rest of the questions you answered as “somewhat important” means that the more of those a woman agrees with you on, the higher the match percentage will be.

Someone who does not disagree with you on any of your very important questions will have a high match percentage, at least from your half of the calculation; it might still be low from her side if you disagreed with her on one or more of the questions she had marked as very important.<sup>8</sup> The more of your questions she agreed with, the higher the match percentage. So women you might be interested in would see a high match percentage, making them more willing to date you, while just how high would tell you which ones you wanted to date.

It was clever, probably correct, and now almost entirely useless, because in the six years since the article was written, OKCupid changed both its algorithm and other features of the program.<sup>9</sup> It is not entirely useless because it demonstrates an approach to the problem that might be applied to other dating programs, perhaps including the revised version of OKCupid, if you could find the relevant information.

Amy and Chris each found a spouse. Jacob's article does not describe the outcome of his search, but elsewhere on his blog he makes it clear that he is married, polyamorous, and still looking — for both lovers and friends. He offers interested blog readers forms to fill out and send him, one for would-be lovers, one for would-be friends.

As Jacob's example shows, dating apps are not the only way of using the technology to find a mate. Consider a web forum devoted to some shared interest — science fiction, fruit trees, right or left-wing politics. Participants, like the members of a real space interest group, have been prefiltered for a common interest. On the forum you can observe a potential mate interacting with others while you remain an invisible spectator. You may even be able to look backwards in time, read every post he made since he joined the forum. You cannot observe how good looking someone is or how good a dancer, but you can observe how well someone thinks, argues, behaves, things which some of us might consider more relevant. I date my interest in the woman I finally married to hearing her explain a point in calculus to another student, revealing a beautifully clear, logical mind. I fell in love on the spot.<sup>10</sup>

That, at least, is how I like to remember it. It did not happen online, but it could have.

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<sup>8</sup> The formula applied the same approach to each side and defined the match percentage as the square root of the product of the two results.

<sup>9</sup> As my possibly biased user sources put it, the program stopped being run by geeks and the suits wrecked it.

<sup>10</sup> After dancing, the folk dancers adjourned to a campus snack bar for ice cream and conversation.

## **If I were Twenty-five and Single**

It has been some forty years since I had any practical use for a dating app but, as is probably clear by now, I find thinking about them intriguing. The accounts I found dealt with a particular dating app but the underlying principles apply to all of them.

You have two objectives. One is to figure out which women you want to date, the other is to persuade them to date you. You have two mechanisms for achieving those objectives. One is the information you provide to the app, some or all of which will be available to potential dates. The other is the decisions you make of which women to like, message, or propose dates to, based on the information they provide you.

You cannot adequately satisfy the first objective by which women you choose to message<sup>11</sup> because there is not enough time; even if the site lets you browse as many profiles as you want, there are far too many. You need to filter the data, reduce the number of candidates for your attention to a number you can actually look at. Even if you did have enough time you do not have all the information needed to do the job perfectly, since some of it is in the women's heads, not their profiles.

Explicit filters chosen by you, such as age and geographic location, reduce the pool to be searched. The app may further assist your search by calculating a match percentage or something similar and showing you those it thinks best match you. You look over the profiles that the computer shows you, decide which women to message; you are assumed to be, like me, a male heterosexual, but the logic should generalize to other cases. Each woman you message looks at your profile and message and decides how to respond.

This is the point at which your two objectives can come into conflict. To decide how to respond to you she needs an accurate picture of you. To maximize the chance of a positive response, you need to make yourself look as attractive as possible. The two are not always consistent. For example ...

I believe that current concern with climate issues is vastly exaggerated, that global warming is unlikely to be a catastrophe and might well turn out to be a net positive. That is an opinion unlikely to be shared by most of the women I would want to date, so expressing it on my profile would make many of them less willing to respond positively to my message. But while it reduces the number willing to date me it raises the average quality of those who remain, since a woman who is either skeptical of the current orthodoxy or interested in why someone else is would be a better gamble for me than one who was neither.

If leaving out that information gets me thirty positive responses and including it gets me ten I should probably leave it out — some of the twenty might find my view less off-putting once they knew more about it and me. On the other hand, if including it reduces responses from thirty to twenty-five, it is probably a good way of saving myself some wasted time. If leaving it out gives me three positives and including it gives me none, I am certainly better off leaving it out.

At the start of the search for a mate online I do not know how many positives I will get, which is an argument for weak filtering, at least until I have more information, so I should start by giving information that provides a hard filter, repels only women I probably shouldn't be dating, but

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<sup>11</sup> Different apps differ in the details of how one party expresses interest that the other can respond to. On OKCupid when Chris McKinley was using it, he signaled his interest in a woman by looking at her profile and then letting her respond or not — although if she didn't, he could presumably have given a stronger signal by messaging her. On other programs a woman only knows you are interested when you message her.

omitting information that provides only a weak filter, probably including my views on climate. If I turn out to be more popular than I expected, I can add it to my profile later and see what happens.

### **Tinder in the 19th Century**

The Rev. Joshua King, called in, and examined.

“You are clergyman of the parish of Bethnal-green?”

“The rector of that parish.”

...

"Is the manner in which those houses are conducted particularly disorderly?"

“I have reason to believe it is; the Seven Stars and Three Sugar Loaves are a receptacle for suspicious characters, at hours when all other public-houses are closed; and at the Sun, a club significantly termed a cock and hen club, has been, and I believe still is held.”

“In which boys and girls meet?”

“Yes, and get drunk and debauch one another.”

(Report from the committee on the state of the police of the metropolis: with the minutes of evidence, London, 1816.)

### **Does Free Love Promote or Impede Successful Marital Search?**

Listening to satellite radio while driving, I occasionally come across the Cosmo channel. The assumed target audience seems to consist of women engaged simultaneously in the search for a long-term partner — a "keeper" — and a dating pattern involving a good deal of casual sex. That raises an interesting question: does the latter make success in the former more or less likely, for them in particular or for women more generally? It is an old question, but the sexual revolution may provide new evidence.

It may also have changed the answer.

There are two obvious arguments against the modern pattern. The first is that, in a society where sex is readily available without marriage, the incentive to engage in a protracted search for a long-term partner, costly in time, effort, and emotion, is much lower than in a society with more traditional mating patterns. The second is that sex, at least in humans, has emotional consequences — you feel differently about someone after sleeping with her (or him) than before. Arguably one consequence is to reinforce emotional bonds that promote long term pairing, plausible on both subjective evidence and obvious evolutionary grounds, given that human infants require extended care. That makes it plausible that the bonds forged with your fiftieth sex partner will be weaker than the ones forged with your first or second, making marital stability, when the keeper is finally found, less likely.

There are two obvious arguments in the other direction. The first is that if individuals very much desire sex and cannot get much of it outside of marriage, there is an incentive to marry in haste and repent at leisure, wed the first moderately acceptable partner willing to say yes. The second is that a successful sexual relationship makes a successful marriage more likely, so the parties are less likely to regret their choice if they try before they buy. Seen from that point of view, cohabitation is a trial run for marriage rather than a substitute.

It is not enough to observe that divorce rates have gone up along with rates of non-marital sex, since that might be due to other causes, most obviously legal changes that made divorce easier. Better evidence would be some sort of large-scale longitudinal study aimed at measuring success in establishing marital (or long term non-marital) partnerships as a function of prior willingness to engage in casual sex. Even that has problems, since we can't run a true controlled experiment, but an ingenious researcher might find a natural experiment that came close.

### **Was the Sexual Revolution a Mistake?**

Even aside from the effect on mate search, it is possible that the sexual revolution has made the world a worse place. The argument has two parts:

1. One would expect the availability of reliable contraception and legal abortion to have sharply reduced the number of children born out of wedlock. In fact it was accompanied, in the U.S. and abroad, with a steep increase in that number, roughly a ten-fold increase, as a percentage of all births since 1940. Correlation is not causation, but it suggests the possibility of causation, especially when it goes in precisely the opposite of the expected direction.

One possible explanation starts with the effect of the changes on the opportunities available to women who want children. In a world without contraception, sex and children are joint products. Rearing a child without a husband to help support you is hard, so women are reluctant to have sex without at least a commitment to marriage if a child results. Men want sex (as do women, though perhaps on average less<sup>12</sup>). Men don't get pregnant and are arguably less interested in producing children than women are. The result is that men are willing to commit to support children if, and in some cases only if, it is the only way they can get a reliable source of sex.<sup>13</sup>

Contraception and abortion break the link. Now women who don't want children and do enjoy sex provide an alternative for men who don't want to support children. Their competition drives down the price in commitment that women who do want children can charge to men who want sex. Hence some women who want children find that no suitable man is willing to commit to support them and end up as single mothers. Seen from that standpoint, the mistake in the conventional view was the assumption that the children of unmarried women were unwanted, due to contraceptive failure or the unavailability of contraception rather than deliberate choice.

So far as the adults are concerned, there is no obvious reason to regard the change as a bad thing; some people are better off, some worse off. Conventional economic analysis would show it to be a transfer plus a net gain; I leave the demonstration as an exercise for the reader.

But the adults are not the only ones concerned. It is widely believed, and may well be true, that children brought up in a single parent household have worse lives than those brought up by a married couple. If so the gains to (some) adults may have been purchased at large cost to many children and perhaps to others whom those children affect.

That is one possible explanation of the sharp increase in the number of single mothers, but there are others. A woman who wants to reproduce faces a choice between two alternative mating strategies, long term and short term. The long-term strategy is to pair up with the most desirable

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<sup>12</sup> Baumeister, R.F., Catanese, K.R., & Vohs, K.D. (2001). [“Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence.”](#) *Personality and Social Psychology Review* 5, 242-273.

<sup>13</sup> Some of this I [discuss](#) in my *Law's Order*.

man she can get and jointly produce and rear children. The short-term strategy is to get pregnant by the most desirable man she can get to sleep with her and rear the child herself. Both women and men are equipped for their roles in both strategies, with different preferences among potential mates according to which is being followed.<sup>14</sup>

In a society sufficiently poor that a woman cannot afford to bring up a child by herself, it is long term or nothing. As a society gets richer more women can choose the short-term strategy, which may appeal to women who cannot find a suitable husband or don't want one. That, allowing for substantial time lags in social institutions, might help explain the large changes in observed behavior in developed societies over the past fifty years.

2. So far I have treated the purpose of marriage as sex and children. It is also about a complicated set of emotional and material benefits, a nest. For a lot of people, men and women, the world is mostly a cold and lonely place. It is nice to have somewhere you belong, with someone who loves you and whom you love.

In a world where non-marital cohabitation is for most people not an option — roughly speaking, the U.S. prior to the 1960's<sup>15</sup> — the usual way of satisfying those desires was marriage. Because marriage was a long-term commitment, men and women were reluctant to engage in it without sufficient search to convince themselves that they had found the, at least a, right partner. Sometimes they were wrong, but less often than if they had been willing to propose to the first even moderately plausible candidate.

In the current world, cohabitation provides many of the short-term benefits without the long-term commitment. Once in such a relationship, both search and exit become harder. With a nest to come home to it can be hard to abandon it for the cold world and a renewed search. If you are fond of your partner, breaking up is hard to do even if objective consideration persuades you that it is in the long-term interest of both parties. Cohabitation may be continued, converted into marriage or the near equivalent, even if the parties are not as well suited to each other as would have been required for mutual assent to marriage under the old system.<sup>16</sup>

Sufficiently rational partners would understand all this and choose between cohabitation and search accordingly, but rationality in this context is under pressure from two directions. Many of us are poor at making tradeoffs between short term and long term, as the state of my weight long demonstrated. And the emotions associated with love, sex, and cohabitation are not entirely conducive to rational thought. The option of an attractive short-term substitute for marriage may result, in the long term, in your ending up with the wrong person.

"Women have simple tastes. They get pleasure out of the conversation of children in arms and men in love."

H.L. Mencken

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<sup>14</sup> Something by David Buss? His book?

<sup>15</sup> I am oversimplifying, since living with a roommate of the same sex, possibly a sibling, parent, or child, was legal. It was not, for most people, an adequate substitute for living with a romantic partner.

<sup>16</sup> Of course, continued search without exit would get easier should polyamory become more common and more widely accepted.

## Are Women Different?

Obviously they are, in a variety of ways, but I am thinking of behavior associated with sex and courtship. The traditional pattern, in our society and many others, was for men to make advances and women to accept or reject them. The normal assumption was that most men were happy, given the opportunity, to go to bed with almost any reasonably attractive woman, most women much more selective. Over my lifetime that has changed. Substantial numbers of women, in at least some social circles, have shifted to something more like the male pattern. That raises an obvious pair of questions: Why did the difference exist and why did it, to at least some degree, disappear?

One obvious explanation is prudential. Women get pregnant, men don't. Hence in a world without reliable contraception a woman faced a much larger risk from sex than a man and adjusted her behavior accordingly, largely restricting sex to partners who could be expected to help her rear any offspring that resulted. A second possible explanation is social. Both men and women valued long term relationships, men preferred to marry women who had not had sex with other men, and women thus found it prudent to maintain at least the appearance of virginity until they had obtained the necessary commitment from a partner. In both versions, the incentive for the traditional behavior pattern might be amplified by a feedback effect. Promiscuous sex was imprudent, hence openly promiscuous sex signaled a lack of sense and/or self-control, making a woman who acted that way less attractive as wife, employee, or in most other roles.

A third possible explanation is biological. The scarce biological input to reproduction is neither egg nor sperm but womb space, and it belongs to women. That put them in a position to be much pickier about their partners than men needed, or had any reason, to be. Casual sex was a reproductive win for a male, since it cost him nothing and might produce offspring. For a female, able to produce only one child every year or two, it made sense to select the father of that child for the best combination of high-quality genes and willingness to help support offspring that she could find. The result was to hardwire different patterns of behavior into males and females.

The first explanation most readily explains what changed. As reliable contraception became available, the incentive for women to refrain from casual sex disappeared. Women, like men, enjoy sex, so women shifted their behavior to be more like that of men. Over time social expectations adjusted; there was no longer a reputational cost to behavior that was no longer imprudent.

That works, if less well, for the second explanation. One implication of the increasing availability of contraception was that women who did not want children and did like sex would be willing to sleep with men without long term guarantees. Their competition would weaken the bargaining position of women following the traditional strategy and so weaken the attraction of that strategy, hence the incentive to maintain a reputation for virginity.

The third alternative provides no explanation for the change, since human evolution is too slow to produce significant change over so short a period. It might be consistent with the change, however, if we assume that something else explains it, perhaps ideological and/or social pressure towards women throwing off the constraints of traditional sex roles.

One rather weak piece of evidence for that reading is that, if my impression is correct, the new behavior pattern has not proved entirely satisfactory. I have read a number of articles by women who had followed it and were now unhappy at the results. I have not come across any similar articles by men lamenting the downsides of male promiscuity, although they might exist.

## ***Stranger in a Strange Land: Fifty Years After***

Heinlein's very popular novel had a significant short-term effect on the culture when it came out but a negligible long-term effect so far, beyond adding "grok" to the language. Its most radical message was the idea of group marriage of a particular sort. The nests it described were stable high trust families formed with minimal search and courtship. You looked in someone's eyes, recognized him or her as a water brother, and knew you could trust each other forever after. It was a naively romantic picture, possibly workable with the assistance of the protagonist's superpowers, distinctly risky in the real world but fitting well into the naively romantic hippy culture of the time. Quite a lot of people seem to have tried to implement it and for some it may have worked. When I spoke on a panel at a science fiction convention some years ago, one audience member made it reasonably clear that she had joined a nest, was still in it, and was happy with the result.

Sexual mores changed, but not in that direction. Living in southern California in the eighties, the view that seemed most common among young adults — many of those I associated with would have been people I met through the SCA,<sup>17</sup> a subculture that had noticeable overlap with hippiedom — was very different. The ideal pattern was stable monogamy, but who could be so lucky? Insofar as it had been replaced, it was mostly by the increasing acceptability and practice of casual sex.

There has been some development since *Stranger* was published, in practice and theory, along the lines of group marriage, but of a somewhat different sort. Polyamory is much more self-conscious and structured than what we see in *Stranger*; partners are classified as primary or secondary and a good deal of attention paid to just what those terms mean and what behavior they imply. The result is rather closer to the Oneida Commune of the 19th century, on a much smaller scale, than to the nest.

This fits not only what happened in the real world but what happened in Heinlein's fictional worlds. Consider a more sophisticated version of group marriage, the line marriage in *The Moon is a Harsh Mistress*. It is highly organized, with new members brought in at the low age end on a regular pattern of alternating gender. There is extensive search/courtship. And the protagonist offers a plausible explanation of its social role, why these particular institutions developed as they did and what purpose they serve.

Finally, consider *Friday*. The protagonist, surprisingly naive given her profession, joins a group marriage, makes a substantial commitment to it and is booted out, her share of the assets stolen, when it is discovered that she is an artificial person, the superior product of genetic engineering. Her much later commitment to a second group marriage follows more careful research.

## **Diamonds, Advertising, Sex and Marriage**

According to a well-known story, diamonds became popular for engagement rings as a result of an advertising campaign by the N.W. Ayer advertising company on behalf of De Beers. "[Rings and Promises](#)" by Margaret Brinig offers a more interesting explanation of why and when the giving of an expensive engagement ring became a common custom.

Her explanation starts with the fact that pre-marital sex is not a new invention. It was common in the past for engaged couples to have sex with the understanding that if the woman got pregnant they would get married; evidence from several late 19th century European cities suggests that

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<sup>17</sup> The Society for Creative Anachronism, a historical recreation organization I have been active in for a very long time.

about a third of brides were pregnant. One risk was that the man, having gotten the sex, would dump his fiancée instead of marrying her. One solution in U.S. law was the tort action for breach of promise to marry. In a society where marriage was the main career open to women and the loss of the reputation for virginity substantially reduced a woman's marriage prospects, seduction could impose substantial costs and result in a substantial damage payment.

Starting in 1935 in Indiana, the action vanished from state law. Women responded, by Brinig's account, by requiring a down payment from their fiancés in the form of an expensive ring, which forfeited if the fiancé terminated the engagement. Think of it as a performance bond.

Brinig looked at data on diamond imports and concluded that the demand for diamonds started to rise about 1935, four years before the Ayer marketing campaign usually given credit for creating the demand for engagement rings. The evidence also suggested that the custom began declining once premarital sex became widely accepted, largely eliminating the problem it was designed to solve. Since 1980, by her account, engagement rings have never amounted to as much as 20% of all diamond sales.

From which I conclude that the Ayer agency was indeed good at marketing, if not at marketing diamonds at least at marketing itself, spreading a story that gave it credit for a stunning effect that began four years before its supposed cause.