



# Ask Professor Nescio

**Editor's Note:** Graduate students, early career faculty, and other mathematicians may have professional questions that they are reluctant to pose to colleagues, junior or senior. The *Notices* advice column, "Ask Professor Nescio", is a place to address such queries. Nomen Nescio is the pseudonym of a distinguished mathematician with wide experience in mathematics teaching, research, and service. Letters to Professor Nescio are redacted to eliminate any details which might identify the questioner. They are also edited, in some cases, to recast questions to be of more general interest and so that all questions are first person. Some letters may be edited composites of several submitted questions. Query letters should be sent to [notices@math.ou.edu](mailto:notices@math.ou.edu) with the phrase "A question for Professor Nescio" in the subject line.

—Andy Magid

**Dear Professor Nescio,**

My spouse and I are finishing graduate school in math this year and will both be looking for academic positions. We have different last names. Would it be to our advantage or disadvantage to let people know in our cover letter about our two-body problem?

—*Married and Looking*

**Dear Married and Looking,**

This is a thorny problem and one for which Professor Nescio must confess uncertainty since his experience here is lacking. Perhaps no one has sufficient experience with this situation to give counsel, let alone wisdom. Therefore Professor Nescio's first piece of advice is to treat any profession of expertise on this matter with skepticism. Even the experience of another married couple that has faced this challenge should be regarded cautiously as there is no guarantee that what they encountered is typical. In fact, my belief is that the great variation in human behavior that manifests itself in all matters will extend to this as well. (Why wouldn't it?)

How to answer your question? My instincts tell me there is no advantage in proclaiming this two-body problem in your cover letter, perhaps even a disadvantage. Let us reason together. There are some creative departments that have used their ability to offer a solution to this problem to great advantage, but this is rare. Some departments will have multiple open positions in the same year, but most will not; so stating in the cover letter the need for two positions might result in your application's being dismissed as impossible. Even if you are willing to share a position you should initially keep this to yourself, as asking a search committee to

solve this is creating an unnecessary complication before they even know who you are.

All applicants for an academic position should try to understand the recruiting process from the point of view of the recruiting committee, but this goes double for you (pun intended). The first task of any applicant is to make the committee or chair fall in love with you. Only then will they be willing to seek a creative solution for your problem. So why create a problem for them before they fall in love.

On the other hand, if getting an appointment together is the only way you will consider an offer, you should certainly reveal this in the letter. However Professor Nescio believes imposing that initial condition on the solution of your problem would be a grave mistake. Therefore Professor Nescio has arrived at the conclusion that there is no advantage to revealing your relationship in the cover letter. If you heed this advice, when do you reveal it? That is something you should assess when you see the circumstances. If the department has multiple open jobs, then it would seem that letting them know earlier is better. If there is only one slot to be filled, wait until they have been exposed to your great research accomplishments, your wit, your clear superiority in the classroom, your obvious charm and sparkling personality—all of which guarantee you will be a spectacular colleague.

The exact moment to make the revelation depends on too many extra conditions to give any universally applicable advice. After the offer is made? Are you the first person they offered the position to? Have two others turned down the offer before they offered it to you and therefore they might be willing to go the extra mile to get you signed? On the other hand if you wait until they make you an offer, this might be a problem. You

don't want them to feel as though they are victims of a bait and switch approach. As you see, there are too many variables in this to expect a unique solution. So be flexible and judge the personalities you are dealing with and the particular circumstances.

As you are clearly aware and this discussion reveals, the two-body problem is a difficult one to solve; it is even difficult to approach. An even more difficult version of the two-body problem occurs when the bodies are in different disciplines (like mathematics and engineering), since such a problem involves more than one department, perhaps more than one college within a university. Professor Nescio knows of several couples who have solved it, even the more difficult version, though he knows of none who found the solution straight out of graduate school. Thus the first advice on this matter is to be flexible. Be prepared at this stage to only find an approximate solution—one that permits periodic rendezvous. Of course if the period is too long, this may not be a solution at all. On the other hand Professor Nescio's strongly romantic personality sees the potential here for great excitement—frequent reunions, candlelit dinners, a shared bottle of wine, and pent up love suddenly reignited.

You did not raise the issue of children, which will complicate the issue and make the problem even more difficult to solve satisfactorily. Professor Nescio long ago learned not to stick his nose into people's personal business. Indeed he has often resented the attempts of others to tell him how to live. He understands the issues and forces that determine the course of peoples' lives and that no one knows these better than the principals. Nevertheless he feels he would fail his public if he were not to say anything on this topic. Children are marvelous creatures who walk the earth in a state of wonderment and enrich our lives in ways incalculable. They teach us things we might never otherwise learn. Nevertheless the wise postpone having them until circumstances are right. Getting through graduate school is hard work and a full-time job; children are best left to life after you have a degree. This applies to all, but especially to those who will have to solve a two-body problem.

—*Good luck and good hunting,*  
Professor Nescio

#### **Dear Professor Nescio,**

I am a third-year graduate student. I started working with an advisor last year, but now find another faculty member's research more interesting. How do I explore the possibility of changing advisors without causing any hurt feelings?

—*Thinking of Switching*

#### ***Dear Switching,***

Professor Nescio salutes your concern for the thesis advisor's feelings. He frequently laments the lack of such concern in our profession. Nevertheless, understand that what is at stake outweighs someone's feelings and if you must upset your current professor, that's the way it goes. Your need to pursue the research that most interests you has higher priority.

The relation between a student and thesis advisor is a complicated one, perhaps more so than between two collaborators and less so than between a married couple. But severing the relation between advisor and student, if initiated by the student, is probably easier than severing the relationship in the other two examples. The student's interests take precedence over other matters and so when you switch advisors, all should acknowledge your right to do this and all should continue with their lives. Of course for certain personalities this might present a challenge. Understand that any objective mathematician will say you have a right to make this change—that's not in question. However, as you seem to fully realize, in the real world there are additional considerations like egos and the fact that a senior faculty member may have already invested time in your development and he/she may now regard this as wasted time.

Given your description of the circumstances it sounds as though you have not obtained any "significant" results with the first advisor. If you had, this would present a more difficult situation. If I were you I would first discuss the impending switch with the new advisor, who is likely to know the old advisor better and will be better situated to see a potential problem. However this is a situation where Professor Nescio believes the direct approach is the optimal one. After getting the new professor's agreement to be your advisor, very quickly go to the old advisor and deliver the message. In the meantime, discuss this with *no one else*. You do not want the old advisor to get the news from another party.

Professor Nescio has had many doctoral students and he also had one who worked with him for a year and then left his tutelage. This was a disappointment as the student was talented, but he accepted it with the same grace that can be expected of any adult. In working with this student Professor Nescio was a bit more disturbed than usual about his lack of progress; quite possibly the student was upset by this as well. Sometimes things just don't work out between student and advisor. Professor Nescio never held any resentment toward the student and he doesn't believe his reaction was unusual in the profession. In fact he knows of no incidents where such a divorce, at the early stage you are discussing, led to serious problems.

If you have obtained a good result while working with the original advisor, things are more complicated but the same basic approach is advised. You might complement this by asking the first advisor if he believes the result should be included in a short paper; you should say you will write the paper and add his name as a co-author. Again I would clear all this with the new advisor. (By the way, if this is the first paper you have written, expect this to take a fair amount of time. Most students have to learn this part of the profession and if the first advisor is in any way demanding—which he has a right to be—this will take double or triple the time you budget for it.)

—*Good luck,*  
*Professor Nescio*

**Dear Professor Nescio,**

I am currently a fourth-year graduate student in math at a prestigious school. During my second and third years, there was a postdoc in our department whose work I found very interesting. This postdoc has now moved on to a much less prestigious university but I am very interested in working on this line of research. Unfortunately, no one at my university is able to advise me on this line of research, and I am not interested in the areas where they can offer expertise. I do not particularly want to change schools this late in my graduate career, but would this be the best option?

—*Dreaming of Following*

**Dear Dreaming,**

This is a version of the classic conflict between the head and the heart. The head will tell you that graduating from a more prestigious school will be more to your benefit than writing a dissertation under the direction of a rather unknown assistant professor at a lesser school. On the other hand when the heart is fully engaged in a research project, better results follow. Professor Nescio understands why there is a question as to which course you should follow. Let's think about this.

Perhaps there are some questions you should answer and that may help clarify the issue. First, have you approached the ex-postdoc about writing a dissertation under his/her direction? If I were advising the ex-postdoc I would counsel him/her to avoid having a Ph.D. student. At the beginning stage of their development mathematicians have a sufficiently difficult problem getting their own research in shape and should not undertake starting someone else on a career. In addition advising a student is a psychological burden: there is the worry that they won't succeed, the worry that the problem may not work out, and then, should the student succeed, the worry of getting the student a job. All this is to be carried out by someone without tenure, reputation, or an established

research program? No, no. Professor Nescio does not approve. But just as there are teenagers who have babies, there are mathematicians who fail to heed Professor Nescio's advice and then take on doctoral students before they are fully equipped for such an endeavor.

Second, is there really no research at your current institution that attracts you? Frankly this perplexes Professor Nescio. Presumably there was some faculty member who was sufficiently attracted to the work of the postdoc to get him/her the position. Isn't that person's research area close enough to what attracts you? Changing schools is going to delay your graduation and even though a lot of your course work will transfer, your Ph.D. exams will not and the new university will insist that you take some additional course work. It seems clear that you need a middle course to bring you through this conundrum.

I would suggest that you talk to the senior professor at your present institution who sponsored the postdoc, explain the situation, and ask him/her to be, at the least, a formal advisor while the postdoc supplies the research problem. This would relieve the postdoc of much of the pressure and responsibility and permit you to stay where you are. The concept of a formal advisor who signs the thesis but is less identified with the dissertation is not unknown and arises for many reasons. In addition, having an external thesis examiner is a rather common occurrence and the postdoc can serve in that capacity. Your current institution might even have some funds available to support your occasional travel to the postdoc's university to consult with him/her.

Professor Nescio finds your changing institutions after investing three years in its graduate program too disruptive and probably not in your best interest. This is especially so when I believe a far less disruptive solution is likely. But if you insist you must work in the postdoc's area even though it means postponing graduation, maybe it would be better to work with the advisor of the postdoc. There, at least, you have the benefit of a senior advisor and one who has a track record of placing his/her students in good positions.

—*Good luck,*  
*Professor Nescio*