Minorities in Mathematics

If you think about "minorities in mathematics" today, in the sense of groups of people that are underrepresented in the mathematical community, you probably think about women mathematicians, black mathematicians, mathematicians with a physical or mental disability, mathematicians with a past of poverty or as a refugee, mathematicians with underrepresented sexual orientations or religious beliefs, part-time mathematicians with a dual career or occupation, and surely you could extend this list way further.

The first message we would like to convey is that *minorities should be treated together as a whole*, else they can be more easily ignored thanks to the principle "divide and conquer". Of course not everyone has the same needs, and not everyone in the above-mentioned categories needs particular support. However, many of them do: they need role models, mentoring, counseling, and possibly even concrete help at some point of their career. Also consider the fact that one same person can be part of several minorities: as a concrete example, we hired a black mathematician in a wheel-chair coming from a developing country and older than fifty. Therefore it would be better to rename "gender equality" by a more inclusive "minority equality".

The second message is that *helping minorities helps the community*. Indeed, excluding in some way or another a person from an underrepresented group means losing workforce. Consider the following example: if we would have excluded from science all people with a surname starting with E, then there would not have been Einstein. It would be ridiculous to have a bias against people with a surname starting with E, as there is no scientific reason to believe that they are less inclined to science. But of course if such a person is told from birth that people with such a surname are not good enough, and this is statistically confirmed by underrepresentation, there you go with a minority issue. This particular minority issue is clearly nonsensical

and avoidable, but if you think about it, the same holds for all minority issues.

If you are *very inclusive in the list of minority issues*, then you see that there are many people in need of a special support. Just imagine a person being extremely shy: even if this personality trait will not count as a "personality minority issue", then of course as a mentor of such a person you know that you have to give your support in various ways. You need to give encouragement and you can supply for the missing networking. Moreover, you have to assess the gravity of the issue because mathematics research and teaching is based on exchanges. However, if a person is confident in talking with 2-3 people that is maybe sufficient, in the sense that you can imagine a brilliant mathematician who never gives talks and has a permanent position that does not require teaching. We do hope that people with specific problems or disabilities can find their way and are not a priori excluded from academia. We profit to point out that in general more flexibility is required because for example there are people today that are very much against replacing a blackboard lesson by one given writing on a tablet and projecting on a screen: did they consider that for example people on a wheel-chair have no other option? did they consider that their opinion might be mostly based on tradition and custom and that *different is not a synonym of worse*?

Before speaking further of minority issues, let us consider *the majority issue*. Imagine that you have applied for a position where there are 100 applicants, and that you are on top of the list, precisely as good as another person who represents a minority. The committee decides to assign the position to the other person because of the underrepresentation. Do you agree to lose the opportunity of your life for the greater good? Do you realize that, even with equal performance, the other person has probably been tougher than you to fight the stereotypes? Are you happy that the other person will become a role model? Or would you have prefered becoming number two by the roll of a dice, even if the outcome would have been the same? The committee decision is to a certain extent unfair. However the unhappy person of the majority can rejoice in the fact that as of today there is much bias against minorities and unconscious unequal treatment favoring the majority. This claim has been scientifically proven by experiments where, in short, people evaluate one same CV in a different way if the person is called John Smith or Jane Smith because they believe the former person to be a man and the latter a woman. It is statistically likely that you (the reader)

also have such a bias, so please seriously consider attending a training (or make individual reading) to counteract biases, especially if you are part of recruitment committees.

Let us briefly speak about health and occasional career interruptions. If one of your colleagues is away for one year to get a cancer treatment you are (hopefully) very supportive and believe that this is not a real problem for your department, just an inconvenience as many others. Would you have the same attitude if your colleague is away due to a psychic illness? Would you have the same attitude for a colleague taking one year paternity leave? People also tend to underestimate the fact that anybody, although healthy today, can be ill tomorrow. So *not hiring a person with an increased probability of having some kind of problems is not correct*, beyond being unfair. For example, would you refuse to hire a smoker because of the increased probability of getting lung cancer? Also consider that a person with a history of medical problems can be better equipped for future issues with respect to a person that has always been healthy. In general, people with chronic conditions are already in contact with a doctor, know what to do, take preventive measures, and are not afraid of asking for help. However, as of today, the work community is not considered to be supportive. Else, my mathematical friend with diabetes would have instructed the whole department about what to do in case that problems occur, rather than keeping the medical condition as a shameful secret. People tend to be on the safe side in general, for example a woman could reveal to a female colleague but not to a male colleague that she has a headache because of periods, although this information is neither shameful nor important: the principle here is that a female colleague would be seen as supporting concerning that issue, because she understands (the male colleague should have been supportive and understanding too).

We also invite the reader to check whether *social activities are truly inclusive*. Indeed, social activities are also an occasion for exchange and networking, so there must be such occasions for all. For example if the department plays soccer, then it is excluding at least people with health conditions and disabilities. And, if people play well (e.g. with soccer shoes), then they are also excluding all people who are not trained. In that case, consider organizing a yearly event in which soccer is open to everybody (running behind a ball is enough, and mistakes are not laughed at but considered as unimportant and not personal). And, of course, consider organizing an evening in a

restaurant or at the pub (where none should be considered strange by ordering non-alcoholic beverages) or an event with board games (where nobody needs to be a professional, consider an inclusive attitude and cooperative games like Hanabi).

We recommend *reading and getting informed* about the various issues. For example you may learn that the impostor syndrome is not only for women (or, in general, for minorities, although these are much affected). You may learn that female pupils have difficulties in identifying with role models, and these can even be intimidating. One should try to provide positive experiences and emotions, and this is not easy (the more one knows, the better). Also keep in mind that a person representing a minority may feel a strong sense of responsibility for the whole category (a personal failure is seen as a failure for the whole group). Not accepting to make mistakes can rule out career opportunities (and could partly explain for example why there are so few women Wikipedia contributors). On the contrary, a positive attitude, whether for minorities or the majority, helps to face research problems, and any issue at work or in the personal life. Finally, keep in mind that *addressing minority issues is not a responsibility of the minorities*, but everyone is concerned.