RUMI AND MATHEMATICS #1 – HIGH ON MATH

Rumi, or Jalāl ad-Dīn Muhammad Rūmī, is one of the most famous Persian poets from the 13th century. I personally own this little handy book, The Essential Rumi, where Coleman Barks rather freely translated the old poems from Farsi to English. This book means a lot to me and has followed me around since high school, giving great council and inspiration in times of need. I could speak of it for hours, but I guess you will pick up on it as I write about his poems.

Fun fact: The book has nothing to do with mathematics. Or maybe it does? I'm not sure. Rumi writes a lot about *beauty*, and to mathematicians that's obviously the very *essence* of mathematics. Kinda like artists and musicians consider their genre the most beautiful of things – it brings out emotions like any other! Funnily, according to some science stuff this feeling of beauty seems to trigger the same parts of the brain in all of these arts, including mathematics (http://www.medicaldaily.com/math-beautiful-music-or-art-mathematicians-brain-scans-uphold-beauty-abstract-emotional-269154).

This is why I want to connect Rumi with mathematics. I want to show even to people who find mathematics rigid and boring that there is something in it for everyone. Just like music. It's just that maybe school was in the way, or you just haven't found your *thing* yet. It might be anything, and with the help of Rumi I hope to uncover the mystery for you.

So, without further ado. Here's the first poem for you, from the first chapter *The Tavern*:

> ”All day I think about it, then at night I say it.
> Where did I come from, and what am I supposed to be doing?
> I have no idea.
> My soul is from elsewhere, I'm sure of that,
> and I intend to end up there.”

Rumi's poems are quite mystical (not surprising since he was a Sufi mystic), and can be interpreted in countless ways. However, when reading this from a mathematical perspective, I think the subject of the poem is a mathematician struggling with one of life's greatest problems – the unsolved mathematical question. We all know it. You're stuck, you're in pain, you're frustrated and want to give up. Take the easy way out. It's so uncomfortable to some people that it can even bring out panic, especially when forced to do it.

To a mathematician, this nagging feeling of not knowing what the hell you're doing is the bittersweet taste of reaching for the truth. As Rumi's confused soul intends to end up in from where it came[1], so the lost mathematician strives to find the answer in the maze of difficult questions s/he doesn't understand.

It continues:

> ”This drunkenness began in some other tavern.
> When I get back around to that place,
> I'll be completely sober. Meanwhile,
> I'm like a bird from another continent, sitting in this aviary.
>
> //...//

1 Muslim philosophy (simply speaking) describe humans as disconnected from God, and the goal is to be *re*connected. In a mathematical sense this would mean you once knew the solution to your problem and now you have to re-find it.

> If I could taste one sip of an answer,
> I could break out of this prison for drunks.
> I didn't come here of my own accord, and I can't leave that way.
> Whoever brought me here will have to take me home.”

Rumi is drunk, lost and full of questions. When a mathematician encounters a difficult, unsolved problem, his/her mind becomes so instinctively focused on solving it that it becomes a prison for thoughts. The only true way to break free is to solve the problem.

If you've ever done anything you really love doing you know what it means to be *stuck*. You just can't get it out of your head, it *has* to be solved. Writers get writer's block, musicians lack inspiration, artists don't know what to draw or how to draw something. This is what *everyone* feels when doing mathematics. That's right, all those top grade students always scoring perfectly on all the exams, they get stuck as well. Otherwise they're doing it wrong.

And that brings med to the last part of the poem:

> ”This poetry. I never know what I'm going to say.
> I don't plan it.
> When I'm outside the saying of it,
> I get very quiet and rarely speak at all.”

Mathematicians have no idea what they're doing. Maths scientists **get paid** to not understand what they're doing – if they did, they wouldn't need to do research. Once they do understand they get paid to teach their newly found answer, but that's a pedagogical problem, not a mathematical one. The only difference between a good mathematician and a bad one is really how long they can keep trying before they lose hope.

And that concludes this first interpretation. To summarize, I have one thing I want you to remember more than anything in this post:

When you're lost in mathematics, you're doing it right.