

Editorial

The trouble with idle thoughts is that they don't always stay idle. Sometimes, they can take on a life of their own. If I expose my musings to just two people, and each of them exposes the thoughts to another two people, and so on, then the number of people exposed grows exponentially. Over the course of the pandemic, this notion of exponential growth, as expressed by the 'R number', is something that has become part of popular culture. Although I wish it had been achieved without the significant effects associated with the pandemic, this wider appreciation of the utility of simple mathematical models is, it seems to me, a good thing.

There's also a general awareness that, especially during a period of exponential growth, a virus is likely to transform, leading to things like the Omicron variant. So, too, idle thoughts can transform, as they are passed from one person to another. It needn't take too long before the subtle aspects of the original thought are lost; a bit longer and the core theme of the thought could be changed, as well. Similarly, the inexact nature of the English language means that there is going to be some loss of information as the thought is created in my head, transformed into the written word and then interpreted by a reader. (Of course, the inexact nature of English does have some benefits: it allows for great puns and cryptic crossword puzzles, for example.)

Given the above, I need to make it very clear that I am not suggesting we make any changes. I am not even thinking that we should start thinking about the possibility of making changes. I really am not!

In addition to the possibility of my idle thoughts being misinterpreted (perhaps, as a result of my poor use of inexact English), the reason I feel the need for such a strong caveat is the topic of this editorial. You see, I've been thinking about the title of our publication, *Mathematics Today*. I'm reliably informed that the *IMA Bulletin* was renamed in 1996, so we've now been using *Mathematics Today* for over 25 years.

I don't know why that title was chosen, so that gives me quite a bit of freedom for my idle thoughts. They are not, for example, influenced by having participated in discussions about possible title options. Alternatively, it could be argued, I'm writing this from a position of ignorance, not being aware of all the subtleties that were, no doubt, debated at length. I hope that those who remember the reasons for the choice of title will forgive my presumption in discussing the topic. With apologies for repeating the point once again, my only defence is that these are just idle thoughts!

As a title, *Mathematics Today* has the advantage of being very brief. Just two words. To my mind, this brevity makes the title both memorable and clear. They are, however, two very important words.

Beginning with 'mathematics', it's pretty obvious, I think, why this is part of both our publication's title and the name of our organisation. It's also a very familiar term. One that, I suspect, almost everyone will have come across, if only during their education. That may give an impression of solidity and constancy.

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I don't think that impression is necessarily wrong, but I do wonder if it is somewhat misguided. In particular, I think the nature of mathematics has changed over time. Or, rather than changed, perhaps I mean grown.

For example, it seems to me that early mathematics was often closely related to philosophy. This is aptly illustrated by Newton's *Mathematical Principles of Natural Philosophy*. Arguably, this link is less strong now than it was, although (at least from my perspective) it is kept alive by things like the Mathematical Universe Hypothesis (MUH). This hypothesis suggests that, rather than just being described by mathematics, our external physical reality is a mathematical structure. The philosophical consequences of this hypothesis, if true, would certainly be profound.

Obviously, there have been many changes since Newton's time. I think it's reasonable to suggest that mathematics has been involved in, if not driven, many of these. Equivalently, there are many, many applications for mathematics, something that is emphasised by the A in our organisation's name!

It may not be too much of a stretch to suggest that, regardless of whether the MUH is true or not, almost everything relies on mathematics. Without it, our society would be irrevocably changed. If you just stop and look, mathematics really is everywhere. It is for this reason that, if we were to change our publication's title (and remember, this is just an idle thought!) then I think you could make a good argument that the first word should be changed to 'Everything'.

So much for the first word in our title, what about the second? The more I thought about this, the stranger it became. For example, 'today' for the author of an article is not the same as 'today' for the reviewer. (And here, if I may, I'd like to say a big thank you to all of the volunteer reviewers who support the publication of *Mathematics Today*. It's not an exaggeration to say that your support is critical to the production of each and every issue.)

Continuing the 'today' theme, it's highly unlikely to be the same for all readers. Given the number of people and the range of locations involved, I think it's unlikely that *Mathematics Today* will drop through every reader's letter box on the same day. Even if it did, whilst I know some people start reading immediately, I also know that others take a more leisurely approach.

When you think about our publication's content, the notion of 'today' becomes stranger still. Whilst we do feature up-to-date information, both in terms of new feature articles and information from Council (see page 12), we also include historical information. The excellent Historical Notes series (see page 24) is a good example of this.

You could also argue that mathematics truly is a subject in which future generations 'stand on the shoulders' of their predecessors. In mathematics, once something is proven, it remains so. This, it seems to me, contrasts greatly with the majority of scientific disciplines, where the current theory is merely the best explanation available at the moment. Consequently, it is not unusual for scientific advances to entirely replace old theories.

The inclusion of historical information, together with the way our subject builds on (but does not replace) the past, means I think you can legitimately and appropriately claim that our publication extends backwards in time. The same logic means that our material, and mathematics more generally, also extends forward in time as well. Inevitably, future mathematics will build on the foundations that are being laid today. Given these considerations, I think there is a reasonable argument that we should replace the second word in our title with ‘Always’.

Whilst I hope that they have been, in some small way, entertaining (or, at least, diverting), I stress once again that these

are just idle thoughts. I think *Mathematics Today* is a great title and I really don’t want to change it. But, just for once, I hope you’ll indulge me as I introduce you to the current edition of *Everything Always*!

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