

---

---

# ANTENNA

---

---

## Snippets

*From the editor*

Hi all! I hope everyone's well and studying hard. To those of you in first year, I hope you're enjoying university life. To those of you who aren't quite there yet, I hope you soon will be.

This issue, we have input from the Mill (the Young Scientist's of Australia research laboratories) instructing us on how to prove theorems correctly - a vital read for those of us sick of citations and proving things from first principles. Also, we have an article about the National Youth Roundtable.

Guys, there was a serious dearth of any kind of input into this newsletter - YOUR newsletter. Articles, poems, stories and pictures are always needed so what are you waiting for?

My address is:  
Stephanie Looi  
9 Benetti Close  
Tingalpa Q 4173  
s.looi@student.qut.edu.au

When it comes down to it, ANZAAS is your organisation so GET INVOLVED! Contact your State Coordinator, your Youth Coordinator (if you have one), or hey, contact me! I crave the attention!

As they say... read on...

---

---

## How to Prove It

Occasionally, it is useful for the researchers at *The Mill* (YSA's research laboratories) to remind everyone about how one should go about proving a proposition. It is quite important that scientific proofs be properly constructed so ensure their veracity. Listed here are the generally accepted forms of proof for use in scientific papers along with additional notes. You should use these forms of proof in all your future work.

proof by example

The author gives only the case  $n = 2$  and suggests that it contains most of the ideas of the general proof.

proof by intimidation

"And this result is, of course, trivial to prove."

proof by vigorous handwaving

Works well in a classroom or seminar setting.

proof by cumbersome notation

Best done with access to at least four alphabets and special symbols.

proof by exhaustion

An issue or two of a journal devoted to your proof is useful

proof by omission

"The reader may easily supply the details",  
"The other 253 cases are analogous", "..."

## ***RTP...***

proof by obfuscation

A long plotless sequence of true and/or meaningless syntactically related statements.

proof by wishful citation

The author cites the negation, converse, or generalisation of a theorem from the literature to support his claims.

proof by funding

How could three different government agencies be wrong?

# QED...?

proof by eminent authority

"I saw Karp in the elevator and he said it was probably NP- complete."

proof by personal communication

"Eight-dimensional coloured cycle stripping is NP-complete [Karp, personal communication]"

proof by reduction to the wrong problem

"To see that infinite-dimensional coloured cycle stripping is decidable, we reduce it to the halting problem."

proof by reference to inaccessible literature

The author cites a simple corollary of a theorem to be found in a privately circulated memoir of the Slovenian Philological Society, 1883.

proof by importance

A large body of useful consequences all follow from the proposition in question.

proof by accumulated evidence

Long and diligent search has not revealed a counter-example.

proof by cosmology

The negation of the proposition is unimaginable or meaningless.

proof by mutual reference

In reference A, Theorem 5 is said to follow from Theorem 3 in reference B, which is shown to follow from Corollary 6.2 in reference C, which is an easy consequence of Theorem 5 in reference A.

proof by meta-proof

A method is given to construct the desired proof. The correctness of the method is proved by any of these techniques.

proof by picture

A more convincing form of proof by example.

Combines well with proof by omission.

proof by vehement assertion

It is useful to have some kind of authority relation to the audience.

[themill@ysa.org.au](mailto:themill@ysa.org.au)

## Not really Science, but anyhow...

Recently, I've become part of what's known as the National youth Roundtable (The National Youth Roundtable is a Federal Government Initiative which brings together young Australians and the government to share and exchange views on issues which have an impact on young people. It was designed to create a direct dialogue with young Australians and the government and to ensure that their views are taken into account in policy-making processes. As part of the Roundtable, the delegates take on a Community Project, which is a series of consultations across Australia. The Community Project is an integral part of the Roundtable and is designed to ensure that the views of the Roundtable emulate the views and attitudes of young Australians.

Anyhow, now that the spiel's done, one of my community projects focuses upon communication, especially male communication. Why? Young males seem to have more 'problems' than females do at the same age. Male suicide is much higher than females, males do not contact counseling services as frequently as females do, and we are always told that guys do not express their feelings well, that they tend to bottle it inside them. My project aims to find out if guys communicate in the same way as females do, the barriers to guys communication and how things like phone counseling services can be made more 'attractive' or user friendly to guys.

This is where you come in. I'm extraordinarily interested in your views on this topic. What do you think of guys communication? How can we teach things like anger management? Do you think they even need to be taught? How can we make youth services more user-friendly? I NEED YOUR feedback. I don't care if it's one sentence or a whole book. Whatever you like.

On a slightly larger note, the Roundtable is a fantastic