

will be so short, much shorter than the argument I finally pushed through in two dimensions, the argument I was struggling to write down earlier. It'll fit on a single sheet of paper, and I'll write it down there and then so that I can give it to my advisor tomorrow. I pedal hard up the familiar street, the arc that's connected me to campus for the last five years.

The lift doors open on the tenth floor. Michael is in this time, talking to Peter, and I stop for a while to chat—mathematics, climbing, work—then excuse myself. In my office I reach for the shelf lined with coloured binders—red, white, orange, purple, yellow, green—all unlabelled. Once I could find any class by the colour of its binder, but now I usually have to look through several. Algebraic topology, however, I know is in the blue one. I pull it down, leaf through to my homework.

The inequality points the wrong way. Where I want a less than, the exercise has a greater than. I check the text to be sure. It says the same thing. Did I bike back in vain?

Surely not. The lemma I need must still be true. If I put together a collection of simple spaces, making sure that all the overlaps are simple, then the result can't suddenly become more complicated—homology can't spring from nowhere like that. I think about the exercise, the example in it that appears to be my undoing, try to understand again what I wrote so long ago. I see that the example can't happen to me; I have an extra hypothesis I can use to rule it out. My instincts were right. The exercise itself doesn't say what I want it to, but my answer to it does. I can use it nearly unchanged, with only a little extra work, to get what I need. I pull out the chair at the computer, log on, and begin to \TeX .

It's 3:30 a.m. and I'm finally done. The proof is written, and at one and a half pages it does indeed fit on a single sheet of paper. I log out and head home again, to bed this time.

Monday afternoon. I'm tired and have a headache from not enough sleep. My advisor isn't in. And the proof I stayed up late over is terribly written. The argument at least is still correct—it hasn't turned into a "Friday Theorem", one of those brilliant ideas that prove fatally flawed by the end of the weekend, if not earlier. The exposition just needs some work. I sit back down at the computer, and this time, when I'm rolling down the hill again, I'm satisfied and have emailed my advisor to tell him what I've done.

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Development Office
Email: development@ams.org
Phone: (401) 455-4000
Toll free in the US and Canada
(800) 321-4267
Postal mail: 201 Charles Street,
Providence, RI 02904-2294