

## ... Margins Not Wide Enough

- 1) *Fermat decries the lack of wide enough margins in which to write the proof of his theorem.*

### Synopsis

This is the theorem: For  $n$  bigger than two, for no integers  $a, b$ , and  $c$  is the statement true that  $a$  to the  $n$  plus  $b$  to the  $n$  equals  $c$  to the  $n$ .

But darn the luck, it appears our worthy Fermat fears that its proof *doesn't fit in the margin*.

Naturally, a proof was in great demand; attempts to find one spanned a period of three centuries.

But then, in '94, a mathematician named Andrew Wiles—a seeming magician—found a proof that ended further inquiries.

...

- 2) *...anonymous men catching a ride into the future on a vessel more lasting than themselves— Billy Collins, "Marginalia"*

### Catching A Ride Into The Future

Maybe, Billy, we should recount this story about Fermat, a French lawyer by trade—not really anonymous, as it turned out, for he caught *quite* a ride—who wrote mathematics in his law and math books, with theorem and proof entered in their margins. In 1637 he penned a statement—less innocent than it looks—placed it squarely within the book's narrow rims and asserted it to be the truth.

But in the remaining space he offered: "Regrettably, to record the proof, the margin was not wide enough."

More than three hundred years  
men sought to find what that margin lacked.  
Mathematicians, both closet and not,  
produced reams of work: racked their brains  
in attempts to forge a proof  
of what Fermat had so simply stated.  
Vast theories were born from these forays,  
and many things discovered, created,  
that were never before imagined or attained.  
But proofs—correct proofs—just weren't at hand.

In 1994 (at last!), Andrew Wiles,  
who'd set himself this marginal task,  
announced to the world—  
he'd found a proof!

His intricate wealth of ideas  
received close scrutiny and, truth be told,  
a flaw was found. But with his colleagues' timely aid  
this was cleverly amended.

As often happens when mathematics  
is given free play, Wiles' primary target  
turned out to be a consequence  
of a related theory others had refined  
without the thought of Fermat uppermost in mind.

The whole world was stunned—if only briefly—  
and marveled at what Wiles had wrought,  
while some of us (mathematicians chiefly)  
blessed what those marginalia had brought.

...

3) *Thoughts on the widths  
of margins—DAB*

**Epilog**

When we pen only our active lives,  
and leave unlogged some sense . . . an intuition,  
is it that we think only those truths survive  
that are confirmed by erudition?

Our lives have moments of note and rest,  
the rests our margins of security.  
Do we restrict those margins to the smallest mesh  
for fear of falling into obscurity?

(The composer, Cage, may have overstressed  
the idea of space between the notes.  
He gave much meaning to the musical rest—  
but what *do* ten minutes of silence connote?)

We read the page, focus on the written text;  
rarely think of the space it lies between.  
But how important to generations coming next  
a little more—or less—space might have been!

*David A. Buchsbaum  
February 1, 2001*