1963 mathematicians could not construct a model for standard ZF set theory where AC was not stubbornly present and hence valid. No matter how hard they tried, they could not expunge AC from any standard model of ZF, so intimately is AC bound to the other axioms of ZF. The main reason is, of course, that "well ordering things" is almost a way of life in mathematics. Set-theoretical models are usually created as well-ordered sequences of shelves, and on each shelf objects are placed in a well-ordered sequence. Thus, well ordering is mostly built in (in a natural way) in any standard set-theoretical model, and AC was inevitably valid in all of them up until 1963. It was P. J.Cohen's genius which finally in 1963 created a standard model for ZF, extricating AC from it (same thing can be said in connection with the Continuum Hypothesis CH).

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Beal Conjecture and Prize

I am writing to update the announcement in the December 1997 issue of the *Notices* of the Beal Conjecture and Prize. Let me report first that it has now come to my attention that the conjecture is stated and discussed in van der Poorten's recent book *Notes on Fermat's Last Theorem*. The problem is also discussed in a March 1997 lecture and paper of Darmon, available from him as a PostScript file. In view of this, I realize now that I should have included more of the story of how and when Beal arrived at his conjecture. Let me also state that although my purpose in writing the original notice was not to give a comprehensive survey of the ideas surrounding the problem (which is beyond me) but simply to report on Beal's conjecture and prize; any essential omissions or oversights in the article are my own responsibility. Thus, I am writing to provide some background about the genesis of Beal's conjecture, to report a simplification of the prize, and to announce a Web site about the prize.

In the summer of 1993 Beal, inspired by hearing about Wiles's stunning achievement, began thinking about Fermat's Last Theorem. From his viewpoint he discovered that there seemed to be a more general relationship at work, which he formulated as his conjecture. Beal mulled over the problem himself. During August 1993 Beal hired an independent contractor, James Wilhelmi, to conduct computer searches for counterexamples. The bank's computers were turned over to this search at night and on weekends. With no counterexamples in sight, Beal became even more convinced that his conjecture was indeed correct. Over the next several months, in his spare time, he tried to prove it. During the summer and fall of 1994 Beal wrote to perhaps fifteen or twenty mathematicians and journals informing them of his conjecture. Some of his choices were very good, whereas others could be expected to be nonresponsive.

Harold Edwards responded in September 1994. He suspected there might be counterexamples and suggested that Beal have someone do a simple computer study which would perhaps reveal them. Beal had also written to Earl Taft as editor of *Communications in Algebra* about his conjecture. Taft had sent it to someone (an anonymous expert) who said they had never heard of the problem, mentioned its relation to the ABC conjecture, and also thought there might be counterexamples.

In the fall of 1995 Beal came to North Texas as a guest of the administration and soon began meeting with some of us here to discuss mathematics. He told us about his conjecture. I thought it seemed interesting, and eventually he proposed to offer a prize for its solution. This culminated with the announcement in the *Notices*.

Since the prize was announced in the *Notices*, Beal has simplified the prize at a fixed $50,000. Thus, the prize beginning December 1, 1997, is $50,000 for either a counterexample or a proof. In the case of a proof, the prize will be awarded when the paper has been accepted in a (reputable) standard mathematics journal and also, in the eyes of the committee, when the proof has been accepted as correct by the mathematics community.

Inquiries about the details of the prize may be sent to me via e-mail: `mauldin@dynamics.math.unt.edu` or by regular mail. There is also a Web site: `http://www.math.unt.edu/~mauldin/beal.html`.

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Mathematics Communication in the 21st Century

The last two letters to the editor in the January *Notices* are disturbing. I hate to think of the AMS stepping across the millennium threshold worrying about "typists" and "overlays".

The underlying issue in both letters is the communication of mathematics. The questions we need to address are:

1. What sort of electronic translation services should a mathematics department provide? The Mathematical Markup Language (MathML) standards are nearing completion, as are various automated translation programs. Mathematica, for example, can import and export to a variety of print and electronic formats. To what extent could the AMS help by setting up a Web site that would automatically translate, say, AMS-LaTeX to MathML? Should department librarians be expected to purchase scanning software that will translate archival printed documents into MathML, Mathematica, or other systems of choice?

2. What sort of electronic communication systems should the AMS provide at meetings? Wireless communication systems are becoming standard features on notebook computers. AMS meetings could include computer servers with public directories on which conference attendees could post electronic documents. Should we also expect meeting rooms with projection systems connected to the Web?

I'll accept that there is a certain amount of "audiovisual tradecraft" associated with giving a good presentation. The University of Malta has