The Completeness of Propositional Logic: A Poem

Written for Thony Gillies' final exam in Formal Methods, ca. 2011

I've got a proof; it's rather neat
That propositional logic is complete.
To start, I should probably state
The theorem we're trying to demonstrate:
If any model that satisfies A also leaves ϕ satisfied
Then from A, ϕ can be derived.
Once we've formulated completeness, any logician
Can formulate its contraposition,
Which in turn is truth-conditionally the same
As the following claim:
If from $\mathsf{A} \cup \neg\phi$, bottom can't be deduced
Then there's some model M that can be produced
That satisfies A, and also ϕ's negation
A fortiori, to reach our desired destination
It suffices to cobble
A proof that every consistent set has a model.
Now here's an important fact that I should mention:
Every consistent set has a maximal consistent extension!
'Wait!' you cry, 'Forgive me for being obtuse,
But how can this be deduced?'
The answer's complex, but here's the gist:
One starts by making a list
It's big: every sentence in the language makes an appearance
Then take an arbitrary set X that exhibits coherence
And if the first sentence on the list is consistent with X
Call their union Y_1; then move on to the next.
If it's not consistent with X, no need for alarm:
Let $\mathsf{Y}_1 = \mathsf{X}$; it does no harm.
Repeat indefinitely (it's rather a pain);
And what you'll get is a great big chain
Take the union of X and all the Y_is; then exult
The union of all of X's consistent supersets is the result!
Call it Y — to show it's maximal consistent takes but a word:
Supposing otherwise quickly reduces to the absurd.
At this point, a canonical model becomes our hero:
It maps all the atomic sentences in Y to one, and the rest to zero.
Once armed with this construction
It's fairly easy to prove by induction
That this model satisfies every sentence in our set.
Once one's done this, it is but yet
A small step to infer from all this twaddle
That every consistent set has a model.
Our proof is done, but alas it isn't mine
So all the credit I must reluctantly decline.
If you liked this proof, you'd better get to thankin'
A fellow by the name of Leon Henkin.