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ABOUT COSMIC LOG

Quantum fluctuations in space, science, exploration and other cosmic fields... served up regularly by MSNBC.com science editor Alan Boyle since 2002.



Alan Boyle covers the physical sciences, anthropology, technological innovation and space science and exploration for MSNBC.com. He is a winner of the [AAAS Science Journalism Award](#), the [NASW Science-in-Society Award](#) and other honors; a contributor to "[A Field Guide for Science Writers](#)"; and a member of the board of the [Council for the Advancement of Science Writing](#).

Check out Boyle's [biography](#) or send a message to Cosmic Log via cosmiclog@msnbc.com.

Pluto's pros and cons

Posted: Tuesday, January 27, 2009 7:25 PM by Alan Boyle

To be or not to be ... a planet? That's not really the big question anymore, no matter how you feel about Pluto's [so-called demotion](#).

The truly big question, addressed in two books that look at Pluto's present position from completely different perspectives, has to do with what *kinds* of planets are out there. That applies to our own solar system as well as the hundreds of other worlds being detected in the universe beyond.

Both books take Pluto as the starting point: In "[The Pluto Files](#)," astrophysicist Neil deGrasse Tyson chronicles the rise and fall of the little world's fortunes - a saga in which he played a role as director of the Hayden Planetarium at New York's American Museum of Natural History.

Tyson got himself in trouble with Pluto-loving third-graders when he decided to leave Pluto out of a parade of planets displayed in the museum's Hall of the Universe. This was back in 2000, well before the [International Astronomical Union's decision in 2006](#) to define the word "planet" in such a way that Pluto didn't qualify.

Today, Tyson insists the omission wasn't meant as a snub. "That exhibit was not an exhibit about the solar system," he said. Instead, it was meant to show the relative sizes of cosmic objects ... objects that just happened to include planets. He pointed out that Pluto and its cousins in the [Kuiper Belt](#), a ring of icy objects beyond Neptune, are included in another exhibit that delves into the solar system's full menagerie.

"I think Pluto's happier there, with the kings of the Kuiper Belt," Tyson told me.

So would Tyson say the solar system has eight planets, or nine? "I say the question doesn't interest me," he answered. "The question should not be how many planets there are. There was never any science in that question."

Rather, the question is how similar objects should be grouped together in the solar system: The way most astronomers see it, the four terrestrial planets belong together (Mercury, Venus, Earth and Mars). Then there's the asteroid belt, with Ceres in the leading role. Then there's the four gas giants (Jupiter, Saturn, Uranus and Neptune). Finally, you have the icy bodies on the solar system's edge - which include Pluto as well as [Eris](#), the even farther-flung object that astronomers found to be bigger than Pluto.

"When you take that approach, you end up with a family photo of the solar system," Tyson said, rather than a list that has to be memorized.

The controversy over what to call Pluto (dwarf planet? distant minor planet? large Kuiper Belt object? comet in a deep freeze?) is just one part of "The Pluto Files," Tyson pointed out. "The rest of the book is a celebration of people's



Young et al. / SwRI / NASA

This view of Pluto was created by seeing how its brightness changed during partial eclipses by Charon.



reactions to this scientific controversy, and it's a fun celebration at that," he said.

What is it about Pluto that makes it, as Tyson says in the book's subtitle, "America's Favorite Planet"?

"It's the dog," Tyson said. "It's entirely the dog."

In the book, Tyson delves into the connection with Pluto the Pup, the Disney cartoon character that was named after the solar system sensation in 1930-31. He also reprints [editorial cartoons about Pluto's plight](#). You'll even find reproductions of some of the handwritten letters from kids who took Tyson to task - or took his side.

"I know how you feel," one 8-year-old told Tyson in a note. "We feel the same about Pluto not being a planet. ... But we just have to get over it. That's science."

'Is Pluto a Planet?'

Unlike Tyson's 8-year-old correspondent, Vanderbilt University astronomer David Weintraub doesn't think the controversy is over - and he doesn't think the way the IAU handled the issue two years ago serves as a good example of how science is done.

"I don't think we have a consensus right now, and science is built on that consensus," he told me.

Weintraub's book on the subject, "[Is Pluto a Planet?](#)," takes a longer view on the big question, starting with the ancient Greeks and moving through the history of planetary discovery. At various times through the centuries, astronomers counted 16 planets, or 13, or eight or nine.

Now that scientists have detected more than 300 planets beyond our solar system, plus [Pluto-sized "planet embryos"](#) and other oddities, defining planethood per se is looking more and more like a lost cause, Weintraub said. That's the approach he takes in the classroom as well as in the book, which has just been updated in paperback to address the "flawed logic" behind the IAU's rulings on dwarf planets and [plutoids](#).

"The word 'planet' by itself doesn't give us enough information to think critically about what someone is telling us," he said. "Jovian ... Neptune-sized ... Earth-sized ... You almost have to have those adjectives in order to make the word 'planet' useful anymore."

So where does Pluto fit in the grand scheme of things? Weintraub said the ultimate answer will depend on several factors - including the growing body of knowledge about extrasolar planets as well as the results from the [New Horizons mission to Pluto](#), which reaches its climax in 2015.

"Come back in 10 years and we'll have a better answer," he said. "I think we're asking better questions right now."

Tale of a telescope

This week, Pluto will be a cause for celebration at the Rancho Hidalgo housing development in Animas, N.M. The developers bought the [16-inch telescope](#) that Pluto discoverer Clyde Tombaugh used in his latter years, and at 3 p.m. MT Wednesday the [instrument will be dedicated](#) at its new place of honor.

The developers for [Rancho Hidalgo](#) also own the [Arizona Sky Village](#), another residential community designed to cater to skywatchers. One of the developers, Gene Turner, told me that Tombaugh's telescope will serve as the centerpiece for a new educational program at Rancho Hidalgo. Among those invited to the dedication are members of Tombaugh's family as well as David Levy, Tombaugh's biographer and the co-discoverer of Comet Shoemaker-Levy 9.

Turner expects the refurbished and upgraded telescope to get frequent use. "There's no shortage of people who can usher people up to the eyepiece," he said. Turner himself has his heart set on imaging Pluto and its biggest moon, Charon, as separate objects - something that's [rarely been done](#) by amateur astronomers.

He promised that Rancho Hidalgo will be a place where a discouraging word about Pluto will seldom be heard. "If you come in here, Pluto's a planet," Turner told me, "and I will put that in my covenants and restrictions."

You can watch Tombaugh show off his telescopes in video clips that are part of [this Q&A](#) with the late astronomer.

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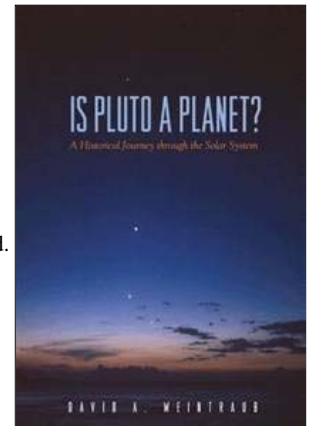
I have to say that I never understood what all the fuss is about. As you quoted Dr. Tyson saying, "There was never any science in that question." Some people have gotten very emotional over this issue.

Martin, Orlando (Sent Tuesday, January 27, 2009 8:25 PM)

Science isn't about consensus. Science isn't about putting one's foot down and making covenants to decide facts. That's not even science; just idiocy. Science is about what IS. Science is the facts. Despite all the arguing back and forth, what Pluto actually IS hasn't changed one bit. Not one atom.

And yet we stand here doing our best to label and name and classify something no human will likely ever see up close, an object that has existed since before humans walked the earth and will continue to exist long after we're gone, and even after the Sun dies.

The names and labels and planetary charts mean nothing, and as Dr. Tyson says, they tell us nothing about the science and nothing about what Pluto IS.



Princeton Univ. Press
Vanderbilt astronomer David A. Weintraub has updated "Is Pluto a Planet?" with a postscript about the planethood debate.



Courtesy of Gene Turner
An archived photo shows the late astronomer Clyde Tombaugh, discoverer of Pluto, with his 16-inch telescope at his home in Las Cruces, N.M. Click on the picture for a larger version.

I find it appalling that the science is being impacted by this desire to keep kids happy, to let them have their nine planets and not eight, because it's somehow unfair to stop counting something. That sort of approach risks rendering astronomy little different from a child's coloring book that displays a drawing of some ducks and asks whether there are three or four. Hurry, lives are at stake. Three or four ducks?

What IS out there in the universe is so much more interesting and important than the name or classification of one object. We're not teaching that to the children or ourselves, even, and it's a horrible mistake.

In a few years, I will be no longer able to see. One of the memories I'll always cherish was the time I, a city boy, went out into the country and looked up and saw the Milky Way for my very first time. I was astonished by what was no longer hidden by all the city lights. I had no concept for what I was seeing and I was reduced to abject tears just at the beauty of it. I still cry thinking about that night. The beauty and wonder of the universe is what we should be teaching to everyone.

PM, Atlanta GA (Sent Tuesday, January 27, 2009 9:07 PM)

First, Tyson is way off about the reason for people's affection for Pluto. It is NOT the dog. It never was the dog. Just because Tyson--an astrophysicist, not a planetary scientist--is baffled by people's affinity for Pluto doesn't mean he can pull any answer out of a hat and claim it to be the reason.

Most Pluto supporters are astronomy enthusiasts with a strong interest in the solar system. They view the solar system as a "family," and see a round object that looks exactly like a planet and find it bizarre that anyone would categorize it as something else.

Pluto as a planet is not in a category of one. There are several of these smaller planets that need to be distinguished from asteroids because their makeup is exactly like that of planets in that they are in a state of hydrostatic equilibrium. This means they have enough self gravity to pull themselves into a round shape, which makes them geologically differentiated like the larger planets and unlike shapeless asteroids and comets. Tyson never discusses hydrostatic equilibrium and blurs this crucial distinction by lumping Pluto and other small Kuiper Belt planets with comets and asteroids.

Inclusion of Pluto--and Ceres, Haumea, Makemake, and Eris--is not being advocated, as PM says, to keep kids happy. In fact, it is the dynamicists--professional astronomers--who have an illogical problem with there being what they view as "too many planets in the solar system." What's wrong is to stop counting categories of planets at two--terrestrials and gas giants--when the reality is there is a third category of planets, the ice dwarfs, to which these smaller round objects belong.

Support for Pluto's planethood is not limited to Americans. I have personally received emails from around the world opposing Pluto's demotion, and there are Internet groups worldwide committed to seeing Pluto reinstated. Many songs and poems opposing the demotion were written by people other than Americans.

Weintraub's book is by far the more scientific of the two, and he's right that the controversy isn't over. Personally, I think my next vacation just might be to Rancho Hidalgo.

Laurel Kornfeld (Sent Tuesday, January 27, 2009 10:32 PM)

A video of the Great Planet Debate can be found at <http://gpd.jhuapl.edu/index.php>, with Tyson and Dr. Mark Sykes, of the Planetary Science Institute, as debaters, and NPR's Ira Flatow as moderator.

Clyde's twin 16 inch (nominal) was moved once before when he moved his home from the center of Las Cruces to the outskirts where there was less light pollution. We believe that it will be well used at Rancho Hidalgo.

W. Sitze, Las Cruces, NM (Sent Wednesday, January 28, 2009 2:36 AM)

Pluto is in space..right. It really does not make a whole a lot of sense to be concerned with naming objects in space. Earth, yes. Earth is planet we lived on. But if the universe is teeming with life and if this life became "intelligent", then it's probably safe to say that they have a different name for planet and so on. Just think of all the different names and classifications of space objects that could be in use at this very moment. Just seems a little odd to focus on whether Pluto is a planet when they had to keep changing the definition of a planet to exclude Pluto. All that hard work should tell you something about what is really out there. These definitions and classifications are going to change time and time again.

Dominic (Sent Wednesday, January 28, 2009 2:54 AM)

The problem with the 2006 Pluto debate and the "demotion" of Pluto, is that it never got to the real point. The question of Pluto's planethood was never a scientific issue. Rather it was a question of public relations, and educating the public about the new understanding of our solar system. The scientists who study the planets had already moved beyond any need to define the eight or nine planets into one category, because as Tyson correctly showed in 2000, they already found it more useful scientifically to use more refined categories: rocky planets, gas giants, etc.

The question is how to enhance understanding of the solar system, and increase interest among people who don't study planets for a living, and have other things to think about, but nevertheless are interested in what is out there. For those of us in this category, to say something is a planet is to say it is an interesting world worth knowing more about, while to say something is not a planet is to say it is a boring rock or iceball in space. If the IAU had understood this, they would have kept calling Pluto a planet, called Eris the 10th planet, maybe set Pluto-sized as the lower limit for planethood. Then when they got attention for having found the 10th planet, begun to explain what is really out there and how interesting it really is. What the debate is, is just a wasted opportunity.

Stephen, Kingston, Jamaica (Sent Wednesday, January 28, 2009 7:03 AM)

Neil deGrasse Tyson is a media whore. He stirred up this controversy for his own career. Reminds me of Zahi Hawass, the head of Egypt's Supreme Council of Antiquities. You can't buy a postcard of the Great pyramid these days without his face somewhere on it.

Emma Morrow, Urbana, IL (Sent Wednesday, January 28, 2009 8:54 AM)

Tyson is just another dog example that any scientist, no matter how celebrated, can be wrong. His irrational dislike of Pluto is just icing on the cake. Pluto was never about the dog....

Michael Wood (Sent Wednesday, January 28, 2009 9:14 AM)

I can't believe that this issue is still getting attention.

Darrell Messbarger (Sent Wednesday, January 28, 2009 9:37 AM)

Please correct me if I am wrong, but isn't a "dwarf planet" still a planet in the same fashion that a "blue car" is still a car? I would like to think that professional astronomers would know the difference between an adjective and a noun.

Dave, Albuquerque, NM (Sent Wednesday, January 28, 2009 10:48 AM)

I have the distinct impression that the reclassification (not *demotion*) of Pluto was because a lot of people, mostly outside of astronomy were uncomfortable with the idea that after the discovery of Eris the number of planets in the solar system was likely to skyrocket well beyond the traditional nine to maybe a hundred or so. If that's the case, then it was a silly reason. Apparently a lot of people give enough cultural weight to the number of planets for it to matter.

[Seth Deitch](#) (Sent Wednesday, January 28, 2009 10:59 AM)

"Consensus" has no place in true science. The "consensus" was that the Sun revolved around the Earth. It took Copernicus to refute that. The "consensus" was that the sky never changed. Tycho Brahe refuted that. "Consensus" is what Al Gore calls global warming. But the consensus then and now are all wrong. Citing a "consensus" as a proof of anything means exactly zip.

Bill Stewart, Cape Coral, FL (Sent Wednesday, January 28, 2009 11:14 AM)

In Pluto's favor,
power politics does not belong in science.

And that is all the decision amounted to; it was shameful.

hugh mcknight (Sent Wednesday, January 28, 2009 11:33 AM)

i was a little disappointed myself on pluto's "demotion". perhaps the iau should take a page from star trek on planet classifications such as: m class or y class. they could use something like that for size, composition, terrestrial, gaseous, distance from parent star. names could be given for individual planets for recognition and study purposes. people have been giving names to anything and everything since our species began to speak. what's the problem with naming cosmic objects as well?

Robbie Withey, New Bern, NC (Sent Wednesday, January 28, 2009 11:36 AM)

I think one reason for the noise is education. What do we tell kids (please read "aspiring young scientists") about Pluto. Once they get older it won't particularly matter, but before they have a basic understanding ... Traditionally it's been a planet and the "demotion" seems rather capricious. Do we go with the flavor of the day and wait for the flavor to change tomorrow? Or is that a little too confusing for second graders?

On the other end, what does it matter. One big question, not even addressed by a designation as a planet, is whether or not it's habitable. If that's not the question then the next practical consideration is mining it. Does it matter whether it's a planet, super planet, sub planet or just a rock in space? I guess it would for licensing purposes. "I'm sorry, sir, your class 3B license only permits you to mine asteroids. I'm going to have to ticket you and confiscate your equipment."

The question does, evidently, sell books.

Tim Rommes, Washington, UT (Sent Wednesday, January 28, 2009 1:02 PM)

All of the arrogant, egotistical pontification from these scientists absolutely sickens me. I am completely ashamed of the current state of humanity's exploratory endeavours. All of the sciences could do with a strong dose of humility.

RH (Sent Wednesday, January 28, 2009 1:14 PM)

Okay. If you had a Cat, and it had Kittens in your oven, you wouldn't call them Biscuits would you?

Bill, Gibsonton, FL (Sent Wednesday, January 28, 2009 1:28 PM)

What about Persephone? Isn't she due a "body"?

Al Adab, Prescott, AZ (Sent Wednesday, January 28, 2009 1:56 PM)

I disagree with David Weintraub, if consensus were truly the issue EARTH WOULD STILL BE THE CENTER OF THE UNIVERSE LIKE THE SCIENTIST OF THE 16 BELIEVED.

a p garcia (Sent Wednesday, January 28, 2009 2:35 PM)

Was there ever a definition agreed upon for what is a planet? Does mass or distance of orbit amount for anything? I guess the problem with including Pluto is that many objects in the Kuiper Belt are very similar to Pluto. Either we have it as a planet for historical reasons or we have a whole bunch more planets.

S.B. Stein E.B. NJ (Sent Wednesday, January 28, 2009 3:38 PM)

Planet means "wanderer" so if it is an object that "wanders" against the back drop of the stars as seen by the naked eye and persists for years then it is a planet. Not that I particularly like such a definition but at least it would accurately represent why the ancients first coined the term. Then we can stop fighting and come up with scientific classifications for solar system based objects.

Daniel, Traverse City, Mi (Sent Wednesday, January 28, 2009 4:00 PM)

I attended New Mexico State University, and took an Astronomy Class, the first thing they expected you to know is who discovered PLUTO. Clyde Tombaugh!

I was fortunate to meet Mr. Tombaugh and even got an autograph that hangs in my office.

What a shame that the Science community snubbed Pluto.

Oh well at least Mr. Tombaugh can rest in peace knowing his discovery still means a lot to a lot of people.

R.S. Trujillo (Sent Wednesday, January 28, 2009 4:09 PM)

Daniel, Traverse City, MI (1/28, 1600)

The problems with that are

1) So few objects are visible with the naked eye, some of what we now recognize as planets wouldn't fit. And this doesn't allow for extra-Solar planets.

2) Many of what we call planets don't persist for years. If recurrence counts, like for Mercury, then would comets be planets?

Getting an exacting definition is difficult, and if you want it to be scientific it has to be exacting. Even if you can figure out what you want a criterion to be based on determining when it's met is a judgement call. How round is round enough and what effect does planetary spin have on this? How swept does it's orbit have to be and how do we measure that, particularly when some objects that cross it's orbit may have substantially different orbit periods.

Of course, agreeing on what the criteria should be based on has to come before determining threshold values, then the problem becomes measurement.

It's not simple and deserves some bickering.

Tim Rommes, Washington, UT (Sent Wednesday, January 28, 2009 8:33 PM)

I must admit, the whole matter seems silly to me. Pluto's basic nature and composition doesn't change because we decide to call it something else. And why is there so much argument over what is a planet and what isn't?

We don't debate about when a particle stops being a speck of dust and starts being a pebble. A very small star is still called a "star". We don't demote them for being small. There was a lot of fear a while back about the LHC creating microscopic black holes--being tiny didn't make us not think of them not black holes.

This isn't science. It's not even BAD science. It's just semantics that's distracting people from more valid scientific pursuits. I, for one, would like some more pictures of Mimas.

Ragtatter, Dayton Ohio (Sent Wednesday, January 28, 2009 10:37 PM)

But we did think of them as not gravity wells.

Tim Rommes, Washington, UT (Sent Thursday, January 29, 2009 3:11 PM)

Alan, if you remember back, we had one person from the IAU say that "it was late... we were tired and just voted to get it out of the way"! Talk about a misstep! I absolutely loved the logic of the multi-year IAU study that round bodies should be planets and only a moon if the center of axis was inside the larger body unlike Pluto and Charon. Science made a great loss that could have inspired people to know there were now 12 or more planets but instead chose to uncharitably embrace the ego of those who think Pluto just another Kuiper belt object like the trillion others the size of a snowball. Ug... always a painful topic considering what was lost! Heck, maybe we'd even have a probe heading to Ceres if they did their job right?

[ALAN ADDS: Thanks, Chris ... the good news is that there *is* a probe heading to Ceres, known as the Dawn mission. It'll go to Vesta first, and should arrive at Ceres just about the time New Horizons arrives at Pluto. I have more news about Pluto to come, so stay tuned!]

CJE HBG PA (Sent Thursday, January 29, 2009 4:30 PM)

Hello; I would like to see and read more about space, stars, etc. Thanks Michel

Michel E. de la Garrigue Anchorage, AK (Sent Thursday, January 29, 2009 9:37 PM)

This is one more example of why any so called scientific discoveries can not be taken serious all the time. When I was going to elementary school I was taught Pluto is a planet. What do I tell my children and grandchildren now.? that our scientists were wrong once again???

That Pluto is nothing?

[ALAN ADDS: No, there's no need to say "Pluto is nothing." This is what I don't like about the "Pluto Is Not a Planet" decision. I'll have more on this as time goes on. The easiest thing to say is, OK, Pluto is a small kind of planet, and we're finding out that there are a number of other objects like Pluto out at the very edge of the solar system. The eight biggest planets in the solar system may be a lot bigger than Pluto, but Pluto is still interesting ... and in fact we're finding more worlds out there that are also interesting in their own right. When your children and grandchildren grow up, they will probably find some more surprises out there! I hope to have more to report on this later... Keep the faith, Alonso!]

Alonso Aragon (Sent Thursday, January 29, 2009 10:41 PM)

Aw... ha-ha!... Now I remember my grip... The clearing your "OWN" orbit clause to be considered a planet. ...which nicely rules out captured free-floating planets 1000s of AU away um... EVEN IF THEY'RE THE SIZE OF JUPITER :)! Sorry... a definitely peeve! :) Hey... at least we proved "scientists" aren't infallible :)!

CJE (Sent Friday, January 30, 2009 3:19 PM)

It's a matter of semantics. What do you call a thing when there is no unifying terminology available to induce the name? The computer discipline is an outstanding example of new terms such as "floppy disk" and "memory stick" which would have little or no cognizance a century previous. And so it is with the more faint solar satellites so recently recognized. There, I've DONE IT! I have invented a new superior term; the compound noun "solar satellite". You see, it was not so hard. Future generations might contract it to "solarsat".

Now we can define subclasses such as planets pseudoplanets, etc.

I'm can't recall what motivated the audacious demotion of Pluto... Whether the author did not like its apparent gassy composition, or that it's not very synchronous like the other bigger solarsats, I can't say.

[Angelo Cmapanella , Columbus, OH](#) (Sent Saturday, January 31, 2009 12:31 PM)

Consensus *does* have something to do with this controversy. It doesn't apply to matters of fact (e.g., whether the Earth goes around the Sun or vice-versa), but does apply to matters of procedure and other aspects of the social dynamics of science and everything else we do, such as how we name and categorize things. That just 4% of the IAU decided to "re-categorize" Pluto and the other KBOs, without giving the other 96% a chance to vote, was disgraceful, the sort of guerilla operation that may have an acceptable place in military situations, but not social ones. Then there's the matter of the stupid definition they gave for "true planet," which included, "has cleared its orbit." Guess what? There are only two planets in the Solar System that have "cleared their orbits": Mercury and Venus. *All* the others have moons and/or Trojan-point space junk in their orbits, which implies that all the bodies from Earth outward are "dwarf planets" -- including Jupiter, Saturn, Uranus, and Neptune. Nice going, kids. That the media went along with this farce, and shut out anyone who had legitimate objections to this travesty of scientific procedure, isn't surprising: the media love controversies, because they sell their sponsors' products. That's what this was, a vast media circus for no particularly good reason, an absolutely disgusting spectacle. Let's hope this coming Summer's vote by the rest of the IAU on this issue restores some sanity to science.

[ALAN ADDS: What I'm hearing is that the IAU meeting coming up in Rio won't do anything further on the planet-definition issue ... no one wants to go back into the mud on this one. Pretty much everyone agrees the issue was handled badly last time around, even those who are in agreement with the outcome. If there is any substantial chance that further action will be taken at the general assembly, I'd love to hear about it.]

[Yael Dragwyla, Seattle, WA](#) (Sent Sunday, February 01, 2009 9:48 PM)

Yael Dragwyla (2/1, 2148)

You're definitely not the only person to hold your opinion. Just the one I've most recently read. FYI: The IAU 26th General Assembly Resolution 5 "Definition of a Planet in the Solar System" includes "[H]as cleared the neighborhood around it's orbit." The footnotes of this resolution define the eight planets. (http://www.iau.org/static/resolutions/Resolution_GA26-5-6.pdf) It may be a stupid definition. That's certainly been an item of discussion. But to say that what the definition establishes as a planet isn't a planet by that definition indicates to me that you just have a stupid interpretation of the definition. To help with that here are a couple of excerpts from their Q&A sections.

"In addition a 'planet' orbits in a clear path around the Sun – there are no other bodies in its path that it must sweep up as it goes around the Sun." and

"In addition a planet orbits in a clear path around the Sun. If any object ventures near the orbit of a planet, it will either collide with the planet, and thereby be accreted, or be ejected into another orbit."

Both of these have "orbit" indicating some degree of proximity. Not the entire orbital path of a planet, but the part of the path it's occupying. So that if we shrunk the asteroid belt down to Earth distance from the sun and then turned it 90 degrees so that it intersected our orbital path in two places, once one hole was punched in the belt our orbit would be cleared. That one hole would meet us as we went by. It doesn't matter that there's a bunch of stuff that never approaches us. Moons that don't hit the planets they orbit, and are therefore moons, seem to be fine. LaGrangians that stay at their respective LaGrange Points seem to be fine.

Obviously one of two possibilities is true. Either they're unaware of moons and LaGrange Point Objects and if you will just write and inform them they will rush to change the stupid definition.

-- OR --

They're already aware of those things and consider objects in a gravitational lock to be cleared. So it really seems to come down to whether or not an astronomical society has heard of the moon.

[Tim Rommes, Washington, UT](#) (Sent Tuesday, February 03, 2009 6:40 AM)

Alan, I guess that's what's disappointing ontop of things. When the IAU made their decision, the head of the group (a woman if I remember right), said that it was a good decision. Hey... if they made a mistake based on voting and the time allotted to it and the ultimate decision arrived at, it's only best to admit it and change it... not just gloss over it as if no one will notice. Scientists are supposed to be beyond that... And the proper label for things is critical! I really feel that the proper/intuitive categorization of round bodies as planets, makes "universal" sense and would have made each new successive discovery FAR MORE monumental, than "oh... we found another dwarf... not so planet today!" Right? A planet is round! and is a definite and diffinitive point at which to differentiate space rocks from major bodies! If there turns out to be 60 such planets who cares? The more the better! Just because the bulk would be small out in the outer solar system, shouldn't take away from their significance!

[Eldridge, HBG PA](#) (Sent Tuesday, February 03, 2009 5:11 PM)

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