

Planet Definition Is Important

Laurel Kornfeld
Highland Park, NJ

Abstract:

The ongoing controversy over "what is a planet" has often been dismissed by many as meaningless because it is "only semantics." The term "only semantics" reveals a problematic perspective because it dismisses the importance of language and how the general public makes meaning out of complex concepts and processes. This is where writers and linguists can be of tremendous assistance to scientists in communicating with the public. Semantics is the study of how we use language to construct meaning; it matters a great deal because words and phrases are integral to the way meaning is constructed. Political campaigns are well aware of this fact, which is why campaign managers carefully choose the terms candidates use, a practice described by writer George Lakoff as "framing." Specific words and phrases acquire meaning beyond their most literal definitions, as can be seen from examples such as "intelligent design," "family values," "compassionate conservatism," and even new verb forms such as "swiftboating."

We can see the same issue in medicine. Frequently, conditions that cannot be explained are placed into "wastebasket categories" that have little meaning or are forced into categories they do not fit. For example, Chronic Fatigue Immune Dysfunction Syndrome, a debilitating condition whose cause is unknown, was frequently and wrongly put in the category of depression 20 years ago. At other times, it was defined in psychologically loaded phrases such as "yuppie flu" (implying a not-so real illness afflicting largely wealthy people), "Chronic Fatigue Syndrome" (implying sufferers were simply lazy rather than sick), and Epstein Barr Virus (attributing cause to one specific pathogen, which is highly questionable).

When it comes to the term "planet," the fact remains, for better or worse, that to a large portion of the general public, there is a profound cultural meaning based on mix of science, history, literature, and popular entertainment. Even people who have little familiarity with astronomy have an inherent understanding of the term "planet." This reality must be taken into account by scientists if and/or when they attempt to formalize a definition of this word. Otherwise, the result will be a growing disconnect between the scientific establishment and the general public, with the latter experiencing a combination of disenfranchisement and bewilderment likely to diminish any potential interest in astronomy they might have had.

What we call objects matters; even the IAU acknowledged this by including non-scientist and writer Dava Sobel in one of its initial planet definition committees. People will accept change if that change is based on real facts that refute an old paradigm, such as the fact that the Earth revolves around the sun instead of vice versa. However, when a change is decreed based not on new facts but on what is viewed as the imposition of one narrow and elitist interpretation, that change will be rightly resisted by an increasingly alienated public.

The discovery of Eris and other round objects in the Kuiper Belt does not inherently change any facts regarding what a planet is. Instead, the presence of these objects indicates a far greater diversity among the objects most people organically recognize as planets. As with the discovery of new medical

conditions, we have a case in which our old categories may not encompass the new discoveries. Instead of trying to artificially fit the new objects to existing categories or dismiss them as not belonging at all, we need to be open to expanding our notion of the concept of planet to include new subcategories we may never have previously imagined.

People generally react positively to new additions and new discoveries and negatively to the imposition of limitations. They are excited by the addition of new objects to the category of planets; in contrast, they are confused and dismayed by what appear to be artificially imposed limitations that diminish the number of planets for reasons that appear to be little more than "nitpicking."

If we want to engage the public with astronomy, the best option is keeping the broadest possible definition of the term planet while allowing for multiple subcategories such as terrestrial planets, gas giants, ice giants, dwarf planets, super Earths, etc., with more categories added as more exoplanets are discovered. Keeping the term "planet" broad to include any object in hydrostatic equilibrium in orbit around a star does not contradict any scientific facts while paying respect to the significant meaning of the word that has become firmly enshrined in public consciousness.