



# Exoplanet naming, electoral competition and strategic failure

John Hickman

Department of Government and International Studies, Berry College, United States



## A B S T R A C T

The novel context of the IAU's NameExoWorlds contest presented the opportunity to analyze electoral returns from 20 one time only contests under a First Past the Post electoral system in which strategic entry costs were low and voters possessed little information about the preferences of other voters. In addition to high levels of both exoplanetary name proposals and voter participation from the wealthy democracies and low levels of voter participation in the Global South, with the exception of India, the election presented two electoral pathologies: wasted votes and strategic failure. The appropriateness of the proposed name, humanitarian sentiment, and voter mobilization by proposing clubs based on national affinity appear crucial in the success of the winning proposed names.

## 1. Introduction

In a January 24, 2015 article in *New Scientist* Jacob Aron warned that Japanese astronomy clubs might name the lion's share of the first 20 exoplanets in the NameExoPlanet contest organized by the International Astronomical Union (IAU).<sup>1</sup> He thought their dominance likely because roughly one third of the 365 clubs then registered to participate were Japanese. Although clubs in Japan did succeed in naming four of the exoplanetary systems, another fifteen were named by clubs in ten other countries. Clubs in the USA named three, clubs in Spain named two, and clubs in Australia, Canada, France, Italy, Mexico, Morocco, The Netherlands, Switzerland, Syria and Thailand each named one. The successful naming by a club in India was later disqualified.<sup>2</sup> Why did clubs in Japan fail to completely dominate the competition? Much of the answer lies in strategic and non-strategic responses to the election system devised by the IAU.

Using analytic tools developed in electoral studies, this investigation of the competition to name these exoplanets reveals that both proposing clubs and contest voters responded to the NameExoPlanet rules in different ways. Although on first impression the election results offer superficial confirmation of the IAU's success in designing a contest that would promote scientific internationalism, analysis reveals that actual behavior was less idealistic.

If place names are ultimately arbitrary and impermanent designations, they nonetheless matter to lay publics and decision makers. Examples such as the renaming of Ceylon as Sri Lanka after independence, the imposition of the country name Former Yugoslav Republic of Macedonia on Macedonia to please Greece, the dispute

between Iran and its southern neighbors about whether the waters separating them will be called the Persian Gulf or the Arabian Gulf, the decision by the state of Washington and province of British Columbia to rescale the Strait of Georgia, Puget Sound and the Strait of Juan de Fuca as the Salish Sea, and successive decisions to rename the largest Russian city on the Baltic Sea as St. Petersburg, Petrograd, Leningrad and again St. Petersburg make abundantly clear the political significance of place names. As an examination of the place names on the far side of the Moon reveal, that interest extends to extraterrestrial realms. The Luna 3 probe inspired Soviet space scientists to assign the names Tsiolkovsky, Korolev, Gagarin and Moscow Sea to large features. The idealistic internationalism of many scientists notwithstanding, national pride is reflected in international competition to claim credit for scientific advances. That such arbitrary and impermanent designations matter to lay publics and decision makers ought to be considered by space policy experts because political support is important for funding space science, including astronomy.

## 2. Electoral system

Under the rules articulated by the IAU for NameExoWorlds, recognized astronomy clubs and similar entities, hereinafter simply 'clubs,' were allowed to propose names for exoplanets in exoplanetary systems. They were also permitted to propose names for the host stars of exoplanets if they had no well-known, historic popular name. Some of the proposed names were in keeping with the mythology used to name planets in the Solar System. Thus for the exoplanet orbiting Pollux, a son of Zeus, the Everglades Astronomical Society in the United

<sup>1</sup> Jacob Aron, *Alien World Names Courtesy of Japan*, *New Scientist*, 225 (January 24, 2015), 12.

<sup>2</sup> Executive Committee Working Group, *Public Naming of Planets and Planetary Satellites*, *Transactions IAU*, Vol. XXIXA (August 2012): 1-10.

**Table 1**  
Wasted votes.

Exoplanet contest	Wasted votes
Pollux	84.9%
14 Andromadae	79.8%
HD 14902	72.5%
tau Bootis (disqualified)	51.6%
PSR 1257 + 12	84.8%
18 Delphini	82.1%
Ain	85.8%
HD 81688	81.2%
xi Aquilae	82.7%
HD 10498	75.5%
upsilon Andromadae	84.4%
55 Cancri	82.7%
Edasich	70.1%
mu Arae	59.0%
51 Pegasi	83.3%
Errai	58.8%
47 Ursa Majoris	76.6%
42 Draconis	82.0%
epsilon Eridani	83.8%
Fomalhaut	78.5%

**Table 2**  
Regression coefficients: Dependent variable: All votes by country.

	coef.	t-test
Votes for Proposed Names from Clubs by Country	0.4035542 (0.157537)	2.56 <sup>a</sup>
India (dummy)	194177 (17788.3)	10.92 <sup>a</sup>

R<sup>2</sup> = 0.77.

N = 41.

<sup>a</sup> = stat. sig. at 0.05.

States offered Mnesileüs, a son of Pollux. Some of the proposed names evoked analogous terrestrial geography. Thus The Science Fiction Culture Cabinet at the University of Turku in Finland offered Virvatuli (marsh light), Terrakoti (earth home) and Lintukoto (warm region where birds migrate in winter) for the star 47 Ursae Majoris and the exoplanets 47 Ursae Majoris b and 47 Ursae majoris c, respectively. Some of the proposed names were attempts to be humorous. Thus the Nichidai Mishima High School Astronomy Club in Japan offered Udon (thick wheat noodles) and Soba (thin buckwheat noodles) to name the star 14 Andromadae and the exoplanet 14 Andromadae b. Clubs were allowed to propose names only for a single planetary system. None of the three examples above were successful. Functioning as an electoral commission, the IAU Executive Committee-Working Group (EC-WG) then selected 20 exoplanetary systems, with 32 exoplanets and 15 “nameable” stars.

Individual members of the public were allowed to cast only one vote for a proposed name or set of names in an exoplanetary system. A plurality decision rule was used to identify the winning name(s) for each exoplanetary system. In effect, the IAU EC-WG established a version of the majoritarian electoral system referred to as ‘First Past the Post.’<sup>3</sup> The chief difference between the exoplanet naming election system and the First Past the Post electoral systems used in legislative elections the UK, USA, Canada, India, Anglophone Caribbean and some Anglophone African countries is that no club could propose names for more than one exoplanetary system while political parties nominate candidates in multiple electoral districts.

More than 630,000 votes were cast, approximately 10% of which

<sup>3</sup> Pippa Norris, *Electoral engineering: voting rules and political behavior*, Cambridge University Press, Cambridge (2004), pp. 42–47.

were invalidated because of identifiable spam voting.<sup>3</sup> Votes were cast in 182 countries and territories. The largest number of votes were cast in India, with 207,820, or 36.72% of the total. The second largest number were cast in the United States: 111,643, or 19.48% of the total. Wealthy democracies were overrepresented both among the clubs proposing names and among votes cast. Although clubs in Japan were overrepresented among the total number of clubs proposing names, the number of votes cast in Japan was low in comparison to that of other wealthy democracies. Only 5411 votes were cast in Japan, which has a national population of approximately 127 million. Yet 5506 votes were cast in Morocco, which has a national population of approximately 33 million. The global South presented generally lower levels of participation. For example, more votes were cast in Finland than in China. Fewer than ten voters participated in each of 43 dependent territories, microstates and Caribbean, Central Asian and African countries.

Some 70% of voters chose proposed names in only one exoplanet system. Another 10% chose proposed names in two exoplanet systems. Only 3% cast votes for propose names in all 20 of the exoplanet systems.

Electoral systems may be criticized for one failing or another, and First Past the Post is often faulted for the following: limiting the range of useful choice for voters because they are compelled to choose between the ‘lesser of two evils’ rather than rank order their preferences, with votes wasted on losing candidates because of categorical balloting, vulnerability to creeping malapportionment and partisan gerrymandering, limited alteration in representation because of incumbency advantage, and illegitimacy because winning candidates may fail to receive a majority of the votes cast. Given extremely low strategic entry costs for a club to propose names for a single exoplanetary system, the impossibility of a club proposing names for multiple exoplanetary systems, and the impossibility of repeating the naming competition for a particular exoplanetary system, the choices presented to voters were numerous and largely though not entirely unconstrained by information about the decisions of other voters. Incumbency, malapportionment and gerrymandering were impossible.

Two related electoral pathologies were present in the rules of the NameExoWorlds contests. The first is that votes were wasted on losing proposed names because balloting was categorical and thus voters were unable to rank order their preferences. Different proposed names reflecting a consensus might have been chosen one of the several electoral systems that register intensity of preference been used. If they possess information about the behavior of other voters, they are likely to be faced with casting a strategic rather than sincere vote as they select the “lesser of two evils.” NameExoWorlds voters possessed markedly less information about the likely voting behavior of other voters than in legislative elections because it was the first such collection of contests, the contest for each exoplanetary system would not recur, and no organization could act as a political party by proposing names in multiple contests. At best, they could recognize the national identity of the proposing club.

The second was that election outcomes may be challenged as illegitimate or less than legitimate because winning names failed to receive a majority of votes cast. Here the potential illegitimacy is a function of the large number of those who voted for losing rather than winning proposed names. That may be important for the IAU as an international non-governmental organization because it depends on reputation rather than enforcement.

### 3. Findings

As the figures in Table 1 show, wasted votes characterized all 20 of the contests, ranging from a low of 51.9% to a high of 84.9%. The mean percentage of wasted votes was 77%. Clearly a lot of information about voter preference was simply unused.

Examination of the raw data about proposals helps to explain Jacob Aron’s alarm about possible dominance of the contests by clubs in

Download English Version:

<https://daneshyari.com/en/article/7538817>

Download Persian Version:

<https://daneshyari.com/article/7538817>

[Daneshyari.com](https://daneshyari.com)