

Preliminary presentation of constellation symbols

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2024 October 18

These characters are not ready for a formal proposal due to the limited extent of attestation. They are presented here to facilitate information exchange.

The modern astronomical constellations all have three-letter abbreviations in common use, such as *Tau* for Taurus. These are used in a star's formal designation, for example α *Tau* for the star *Alpha Tauri*, commonly known as Aldebaran. The twelve constellations of the ecliptic (the zodiac) have in addition traditional symbols, namely the astrological symbol for the sign that was named after the constellation, and which have historically seen use in astronomy. Thus Aldebaran has also been abbreviated $\langle \alpha \text{♈} \rangle$, using the symbol ♈ for the sign of Taurus.¹ This was common practice in astronomical almanacs of the 19th century (e.g. Figure 2). There is some interest in having similar symbols for all 88 constellations, and such symbols have found their way into popular literature.²

Constellation symbols are not limited to the Western tradition: Yoshio Kobayashi and Michael Williams created [single kanji for all 88 constellations](#). Most such projects however see only personal use.

Current Unicode characters

Unicode currently encodes the 12 astrological signs of the zodiac, which have historically been used for the astronomical constellations of the same names: U+2648 ARIES ♈, U+2649 TAURUS ♉, U+264A GEMINI ♊, U+264B CANCER ♋, U+264C LEO ♌, U+264D VIRGO ♍, U+264E LIBRA ♎, U+264F SCORPIO ♏ (for Scorpius), U+2650 SAGITTARIUS ♐, U+2651 CAPRICORN ♑ (for Capricornus), U+2652 AQUARIUS ♒, and U+2653 PISCES ♓. Unicode also supports U+26CE OPHIUCHUS ♏, which is considered a 13th sign in some schools of astrology. An alternative design for Ophiuchus, ♏, should arguably be encoded as U+2695 STAFF OF AESCULAPIUS. Outside the zodiacal symbols, the symbol for Lyra, ♎, is supported as an alternative historical symbol for the asteroid (11) Parthenope at U+1F77A PARTHENOPE FORM TWO.

1. This is the case even though the constellation of Taurus is not in the same part of the sky as the astrological sign of Taurus. The 12 astrological signs are each an equal 30° sector of the ecliptic, whose position is defined by the equinoxes, not by the stars. They were named for the constellation that had been in that position relative to the equinoxes several thousand years ago.

2. Such as Peter Grego, a regular contributor to *Astronomy Now*, the primary magazine for amateur astronomy in the UK. F+W Media, the publisher of Grego (2012), was also the publisher of *Sky & Telescope*, the primary magazine for amateur astronomy in the US. F+W Media's book division has since been acquired by Penguin Random House.

Proposed symbols

[Denis Moskowitz](#), the designer of the planetary symbols U+2BF2 SEDNA ☿, U+1F77B HAUMEA ♁, U+1F77C MAKEMAKE ♁, U+1F77D GONGGONG 𐝒, U+1F77E QUAOAR ♁ and U+1F77D ORCUS ♁ (also ♁ Salacia, ♁ Varuna, et al.), created symbols for the constellations. These started with the few needed to illustrate meteor showers and other astronomical events in Finlay (2008) – namely Lyra, Orion, Perseus, Quadrans Muralis, Ursa Major and Ursa Minor – but by 2008 had been expanded to all modern constellations and would soon be reproduced by other authors (Grego 2012).

Besides the 75 modern constellations beyond the zodiac, there are symbols for the historical constellations of Argo Navis 𐝒 (now broken up to form the constellations of Carina 𐝒, Puppis 𐝒 and Vela 𐝒) and Quadrans Muralis 𐝒, whose name survives in the Quadrantid meteor shower. In addition, the two halves of the constellation Serpens 𐝒, which lie on either side of Ophiuchus 𐝒 (the serpent-bearer), are sometimes referred to separately as Serpens Cauda (the snake’s tail, 𐝒) and Serpens Caput (the snake’s head, 𐝒). The full set is displayed in Figure 1.



Figure 1. Kobayashi (2014). The full set of symbols, including those already in Unicode.

Chart

Due to their number, these symbols would be most conveniently assigned a new block. The modern constellations are listed here in the alphabetic order of their international names, followed by the historical constellations and alternative forms. All eighty would complete five columns, but the two grey characters are arguably encoded already and might be left blank.

























































Constellation Symbols








	xx0	xx1	xx2	xx3	xx4
0	☾	♌	♋	♎	♏
1	♈	♉	♊	♌	♍
2	♎	♏	♐	♑	♒
3	♓	♈	♉	♊	♋
4	♌	♍	♎	♏	♐
5	♑	♒	♓	♈	♉
6	♊	♋	♌	♍	♎
7	♏	♐	♑	♒	♓
8	♈	♉	♊	♋	♌
9	♍	♎	♏	♐	♑
A	♒	♓	♈	♉	♊
B	♋	♌	♍	♎	♏
C	♐	♑	♒	♓	♈
D	♉	♊	♋	♌	♍
E	♌	♍	♎	♏	♐
F	♑	♒	♓	♈	♉





































In the same font, the thirteen constellations of the zodiac already found in Unicode are ♒ Aquarius, ♈ Aries, ♋ Cancer, ♐ Capricornus, ♊ Gemini, ♌ Leo, ♎ Libra, ♏ Ophiuchus, ♉ Pisces, ♏ Sagittarius, ♏ Scorpius, ♈ Taurus, and ♍ Virgo.

Characters

At left are the original fixed-width and variable-width designs by Denis Moskowitz. Summaries of Moskowitz’s explanations of the designs are given at right. Some are taken from illustrations in astronomical catalogs such as Lacaille’s. Non-Unicode fonts are available from Kobayashi (2014).

		xx00 ANDROMEDA – Andromeda’s braid
		xx01 ANTLIA – an air pump; based on Lacaille’s depiction
		xx02 APUS – a bird of paradise displaying
		xx03 AQUILA – the interconnected stars of the constellation
		xx04 ARA – an altar and flame
		xx05 AURIGA – a wheeled chariot
		xx06 BOOTES – a shepherd’s crook
		xx07 CAELUM – a chisel
		xx08 CAMELOPARDALIS – a giraffe
		xx09 CANES VENATICI – two canine heads
		xx0A CANIS MAJOR – a canine head and body
		xx0B CANIS MINOR – a canine head and shortened body
		xx0C CARINA – a hull and oars; part of Argo Navis
		xx0D CASSIOPEIA – the interconnected stars of the constellation
		xx0E CENTAURUS – a horse body and human torso
		xx0F CEPHEUS – a crown, a tree (for ‘gardener’) and a Greek letter kappa
		xx10 CETUS – a whale
		xx11 CHAMELEON – a chameleon
		xx12 CIRCINUS – a drafting compass [distinguish compass calipers, the astrological symbol for asteroid (30) Urania: ♃]
		xx13 COLUMBA – profile of a dove
		xx14 COMA BERENICES – Berenice’s lock of hair
		xx15 CORONA AUSTRALIS – a crown incorporating a letter ‘A’
		xx16 CORONA BOREALIS – a crown incorporating a letter ‘B’
		xx17 CORVUS – a crow’s foot
		xx18 CRATER – a cup
		xx19 CRUX – a cross pointing south
		xx1A CYGNUS – a swan
		xx1B DELPHINUS – the interconnected stars of the constellation

		xx1C DORADO – a dolphinfish
		xx1D DRACO – a dragon guarding the world tree / the north pole
		xx1E EQUULEUS – a horse
		xx1F ERIDANUS – a flowing river
		xx20 FORNAX – a furnace; based on Lacaille's depiction
		xx21 GRUS – a crane displaying
		xx22 HERCULES – the pillars of Hercules, crossed by the middle section of Serpens
		xx23 HOROLOGIUM – a clock showing 3:00 (Horologium's right ascension is 3 hours.)
		xx24 HYDRA – a water snake with its head in the north (female, slightly recalls ♀)
		xx25 HYDRUS – a water snake with its head in the south (male, slightly recalls ♂)
		xx26 INDUS – a handful of arrows
		xx27 LACERTA – a lizard
		xx28 LEO MINOR – an abbreviated form of Leo (♌)
		xx29 LEPUS – the head of a hare
		xx2A LUPUS – a wolf (canine head and ear)
		xx2B LYNX – the eye of a lynx (which one would need to see it, it's so faint)
		xx2C LYRA – a lyre
		xx2D MENSA – a cloud-shrouded Table Mountain (South Africa)
		xx2E MICROSCOPIUM – a microscope
		xx2F MONOCEROS – a unicorn
		xx30 MUSCA – a fly
		xx31 NORMA – a carpenter's square
		xx32 OCTANS – an octant
		xx33 ORION – Orion's belt
		xx34 PAVO – a peacock displaying
		xx35 PEGASUS – a winged horse
		xx36 PERSEUS – Medusa's head held up
		xx37 PHOENIX – a bird rising from flames
		xx38 PICTOR – an easel
		xx39 PISCIS AUSTRINUS – a fish incorporating a letter 'A'
		xx3A PUPPIS – a poop deck; part of Argo Navis
		xx3B PYXIS – a compass box
		xx3C RETICULUM – an reticle; based on Lacaille's depiction
		xx3D SAGITTA – the interconnected stars of the constellation

		xx3E SCULPTOR – a sculptor’s table and art piece; based on Lacaille’s depiction
		xx3F SCUTUM – a shield
		xx40 SERPENS – a snake
		xx41 SEXTANS – a sextant
		xx42 TELESCOPIUM – a telescope
		xx43 TRIANGULUM – the interconnected stars of the constellation
		xx44 TRIANGULUM AUSTRALE – the stars of the constellation as a letter ‘A’
		xx45 TUCANA – a toucan
		xx46 URSA MAJOR – the interconnected stars of the constellation stylized as a dipper
		xx47 URSA MINOR – the interconnected stars of the constellation
		xx48 VELA – a mast and sail; part of Argo Navis
		xx49 VOLANS – a winged fish
		xx4A VULPECULA – a fox (canine head with large ears)
		xx4B ARGO NAVIS – the combined Carina, Puppis and Vela
		xx4C QUADRANS MURALIS – a mural quadrant (a nautical instrument)
		xx4D SERPENS CAPUT – the head end of Serpens and right side of Ophiuchus
		xx4E SERPENS CAUDA – the tail end of Serpens and left side of Ophiuchus
		xx4F OPHIUCHUS FORM TWO – a snake wrapped around a staff

Properties

Properties are all of the pattern,

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[code];[name];So;0;ON;;;;N;;;;
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Like the symbols of the zodiac, the constellation symbols can be expected to have emoji variants.

References

Alec Finlay (2008) *One Hundred Year Star-diary (2008-2107)*. Platform Projects/Morning Star, UK.

Peter Grego (2012) *The Star Book: Stargazing Throughout the Seasons in the Northern Hemisphere*.

F+W Media. [archive.org/details/starbookhowtound0000greg/page/94/mode/2up?view=theater]

Yoshio Kobayashi (2014) ‘K’s Bookshelf.’

ksbookshelf.com/FD/KsConstellationSymbolsCV.html (variable width),

ksbookshelf.com/FD/KsConstellationSymbolsFV.html (fixed width).

Nicolas-Louis de Lacaille (1756 [1752]) Planisphère contenant les Constellations Célestes comprises entre le Pole Austral et le Tropicque du Capricorne. *Mem. de l’Ac. R. des Sc.*

Denis Moskowitz (2008) ‘New Constellation Symbols.’ suberic.net/~dmm/astro/constellations.html.

Board of Admiralty (1831). *Nautical Almanac and Astronomical Ephemeris for the year 1833*.

Figures

<i>Phases of the MOON.</i>			<i>Other Phenomena.</i>	
			D.	H. M.
○	Full Moon	5. 19. 45	1. 4.	- ♀ γ ♄.
☾	Last Quarter	12. 11. 27	1. 6.	- ☾ μ Ceti.
●	New Moon	20. 9. 53	2. 16.	- ♀ δ ♄.
☾	First Quarter	28. 12. 24	3. 1.	- ☾ 1 and 2 δ ♄.
			3. 2.	- ☾ 3 δ ♄.
			3. 18.	- ☾ m ♄.
			4. -.	- ♄ Stationary.
			4. 6.	- ☾ ζ ♄.
			4. 13.	- ☾ 1 ♄ Orionis.
			4. 20.	- ☾ η ♄.
			4. 23.	- ☾ μ ♄.
			5. -.	- ☾ eclipsed.
			5. 2.	- ☾ ν ♄.
			5. 15.	- ☾ ζ ♄.
			5. 20.	- ☾ δ ♄.
			6. -.	- ☾ in Perigee.
Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>		
Tu.	1	<i>Circumcision.</i>		
W.	2			
Th.	3			
F.	4			
Sa.	5			
Sun.	6	<i>Epiphany.</i>		

Figure 2. Board of Admiralty (1831: 1). Astrological symbols are used for the constellations of the zodiac – for example, <♀ γ ♄> ‘Venus at Gamma Capricorni,’ first row at right – but not for other constellations – e.g. not in <☾ μ Ceti> ‘Moon at Mu Ceti,’ second row at right. Also seen here are <♄> for Taurus and <♊> for Gemini. All twelve constellation symbols are used this way in the almanac. Such astronomical use of these symbols is distinct from astrological use, as the astronomical *constellations* of the zodiac are not spatially congruent with the astrological *signs* of the zodiac.

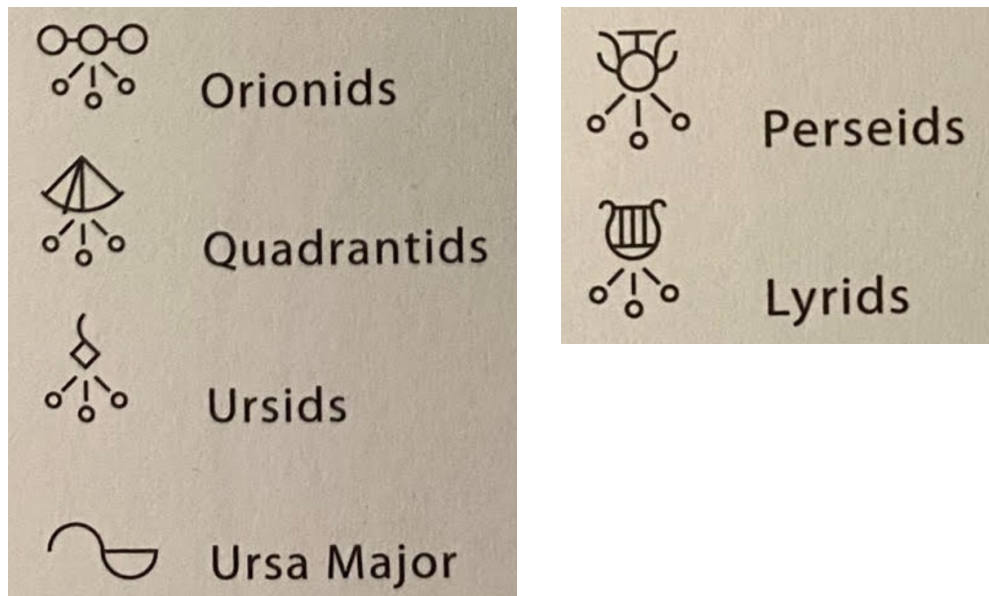


Figure 3. Finlay (2008). The symbol $\langle \sim \rangle$ for Ursa Major, and symbols for various meteor showers based on $\langle \infty \rangle$ Orion, $\langle \triangle \rangle$ Quadrans Muralis, $\langle \diamond \rangle$ Ursa Minor, $\langle \text{☿} \rangle$ Perseus and $\langle \text{♃} \rangle$ Lyra. Lyra is provisionally accepted as U+1F77A PARTHENOPE FORM TWO.



Figure 4. Tattoos of $\langle \text{♁} \rangle$ Chamaeleon and $\langle \text{♆} \rangle$ Volans. Although not evidence of a need for Unicode support of data exchange, these illustrate independent use of the symbols.

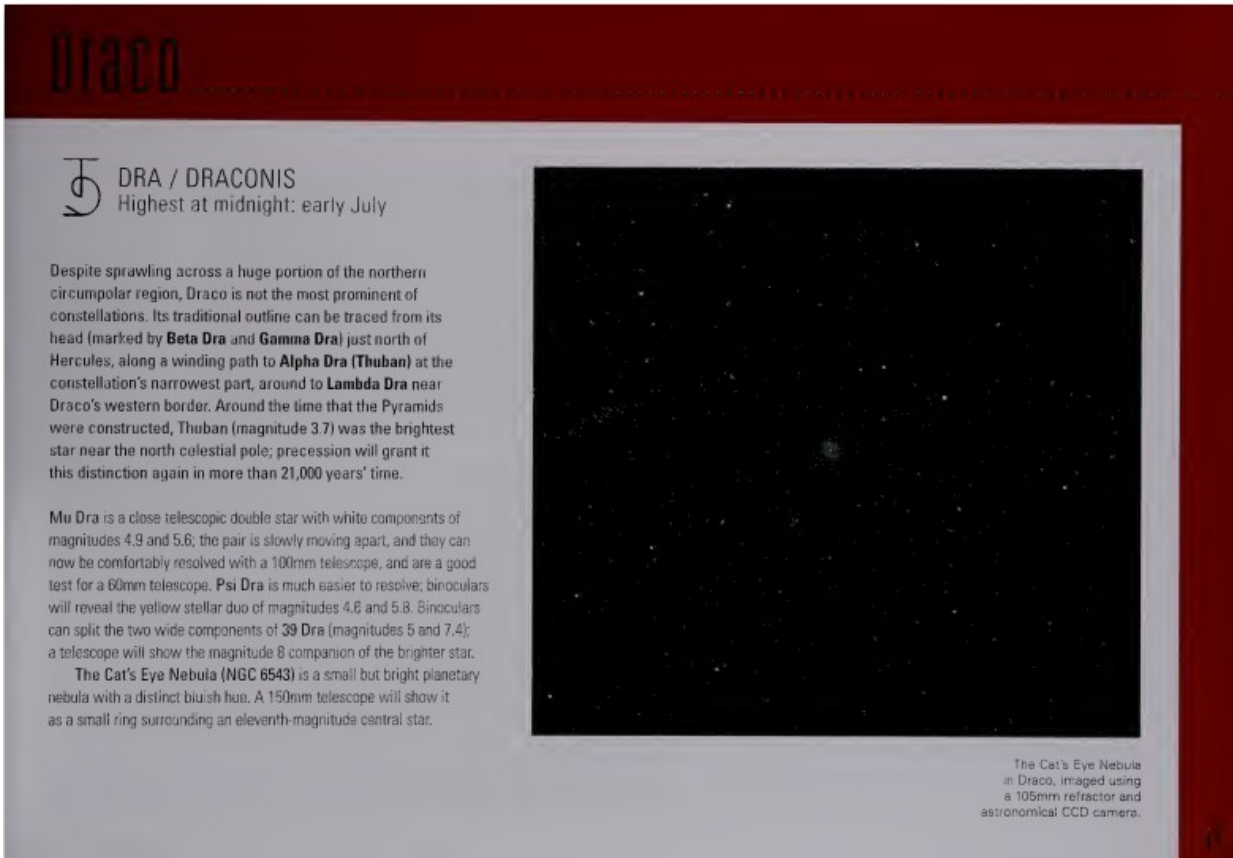


Figure 5. Grego (2012: 47). The first page on the constellation Draco, illustrated with the symbol $\langle \text{D} \rangle$ in addition to the IAU abbreviation $\langle \text{DRA} \rangle$ and the Latin genitive *Draconis* that are used to name the major stars of the constellation, e.g. β DRA for Beta Draconis.



Figure 6. Grego (2012). A few of the modern constellation symbols: $\langle \text{D} \rangle$ Ursa Minor, $\langle \text{U} \rangle$ Ursa Major, $\langle \text{O} \rangle$ Orion, $\langle \text{C} \rangle$ Cetus, $\langle \text{M} \rangle$ Canis Major, $\langle \text{P} \rangle$ Perseus, $\langle \text{W} \rangle$ Cassiopeia and $\langle \text{S} \rangle$ Ophiuchus. Ophiuchus might be encoded as U+2695 STAFF OF AESCULAPIUS.