



Centro de Divulgação Científica e Cultural



Centro de Divulgação da Astronomia
Observatório Dietrich Schiel

Introdução à
Astronomia



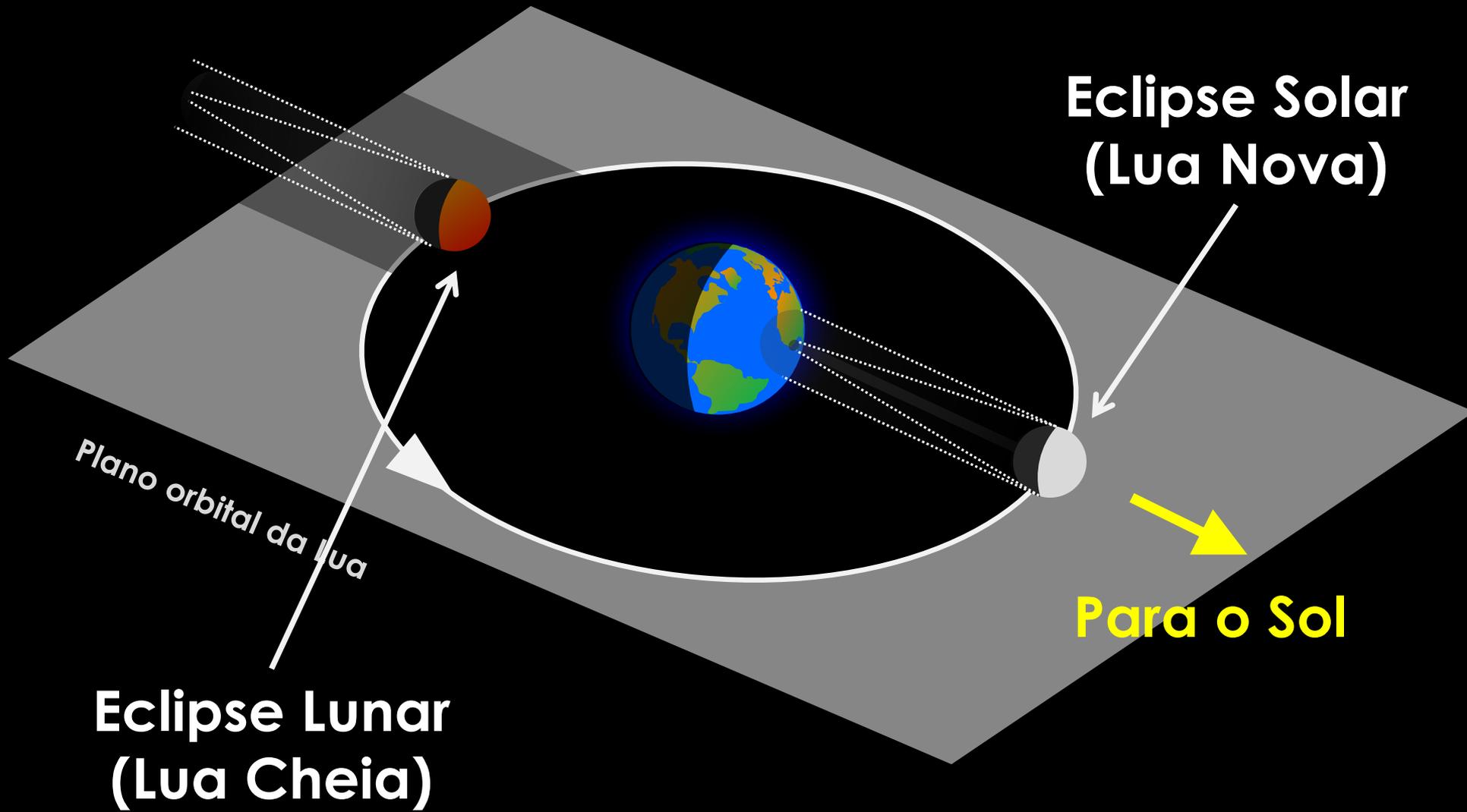
Minicurso básico

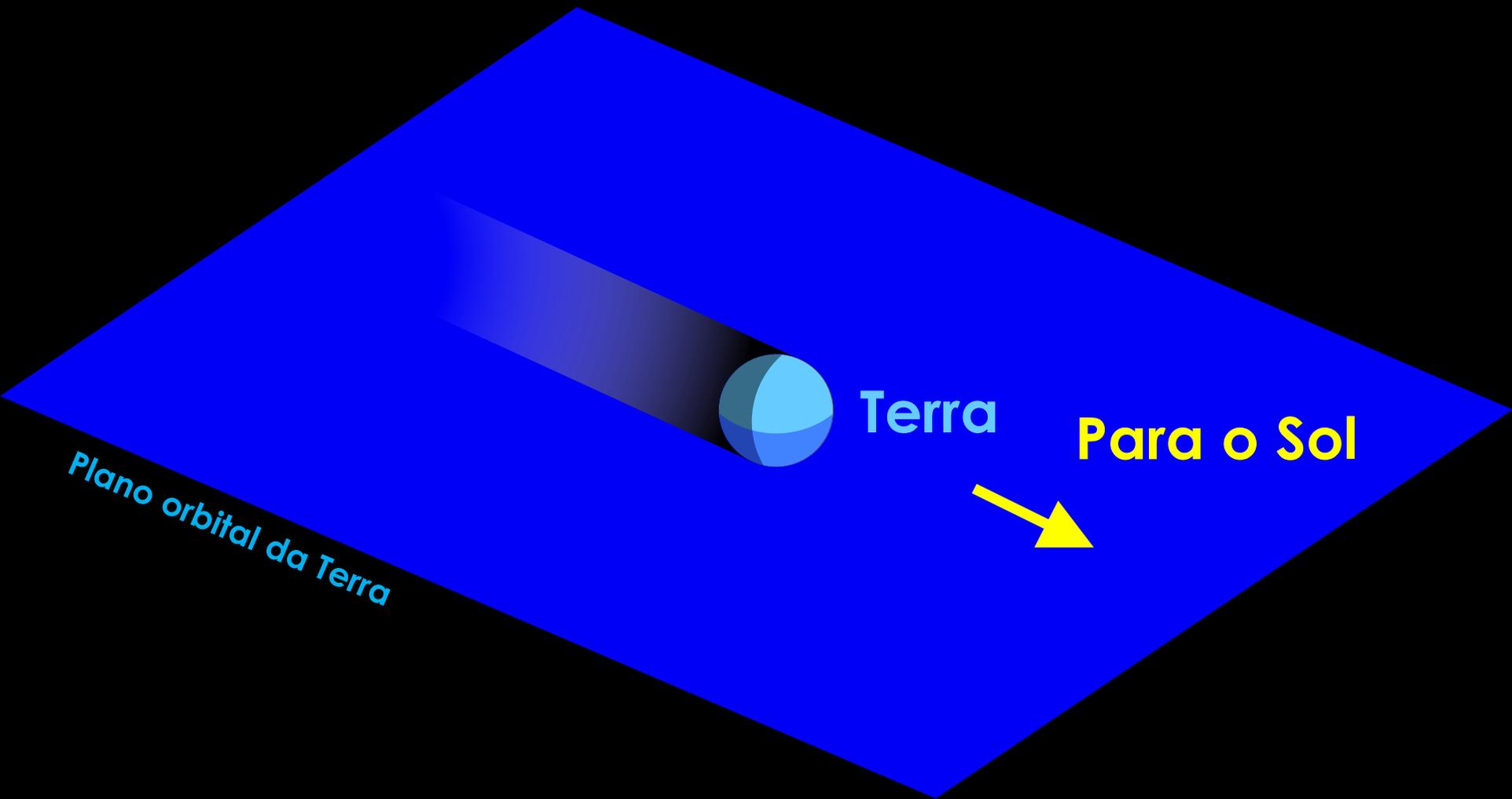
Eclipses

André Luiz da Silva
Observatório Dietrich Schiel
/CDCC/USP

O mecanismo dos eclipses

Figura fora de escala

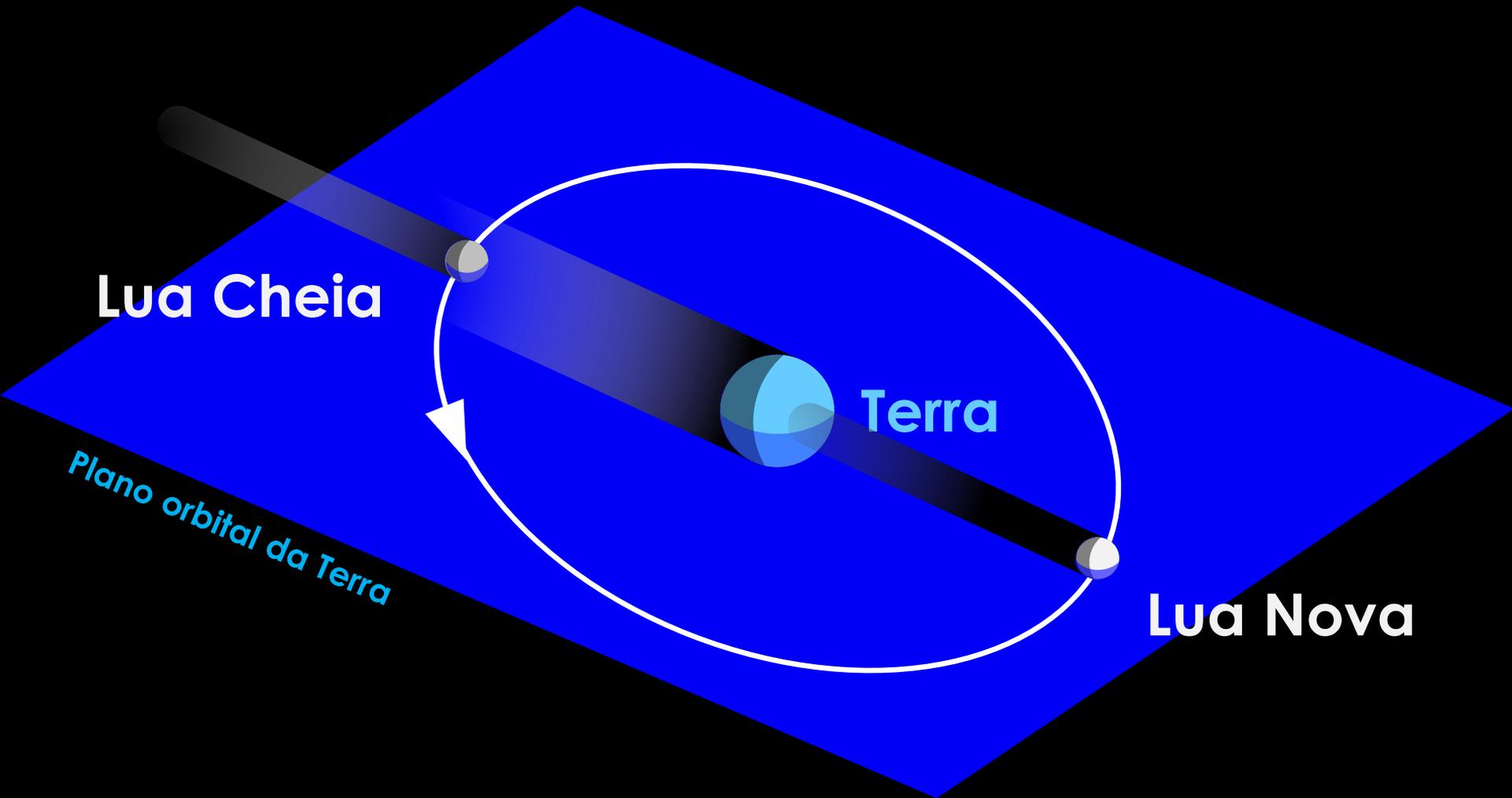




Plano orbital da Terra

Terra

Para o Sol



Se os planos orbitais coincidissem...

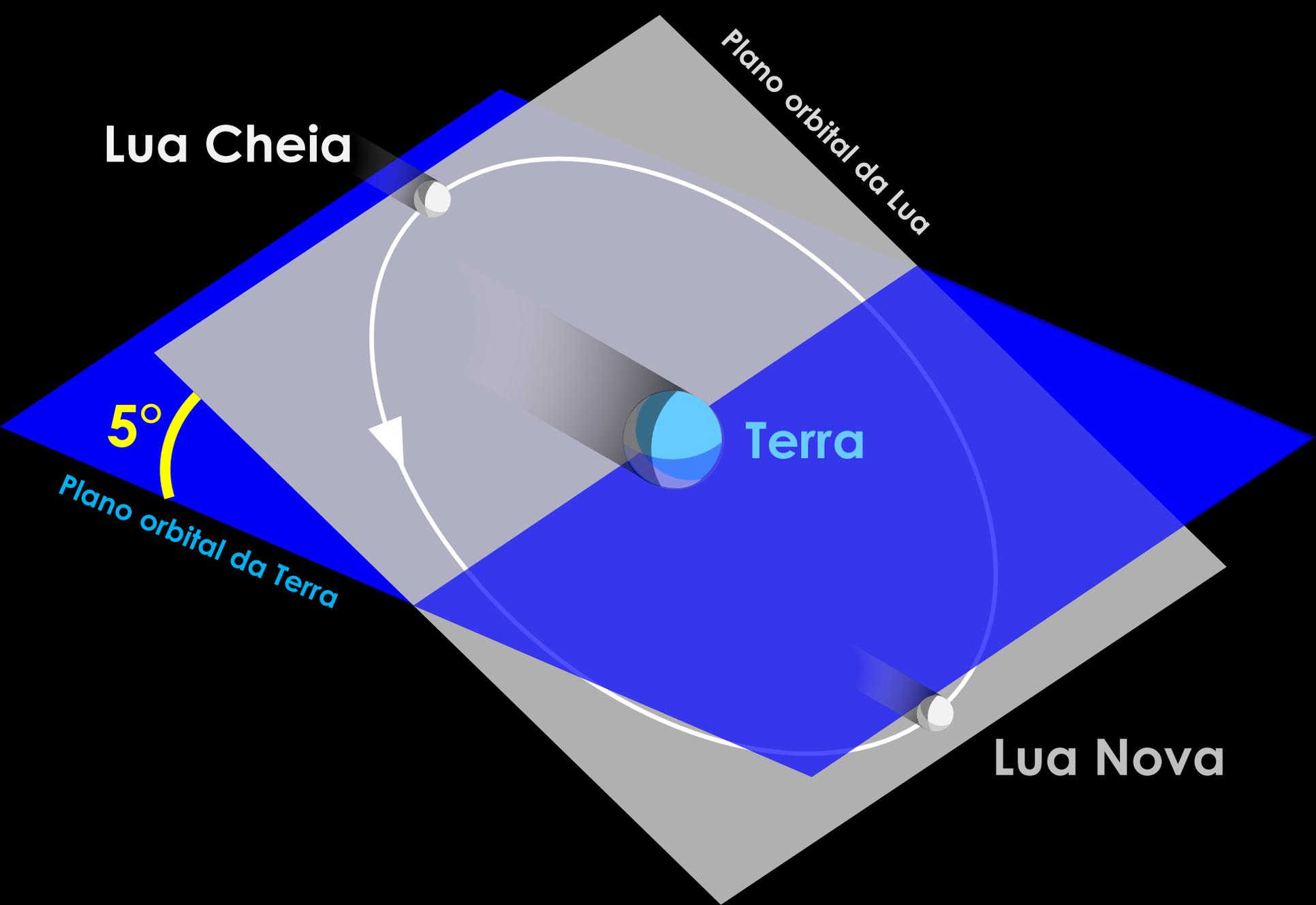


Figura fora de escala

Temporada de eclipses

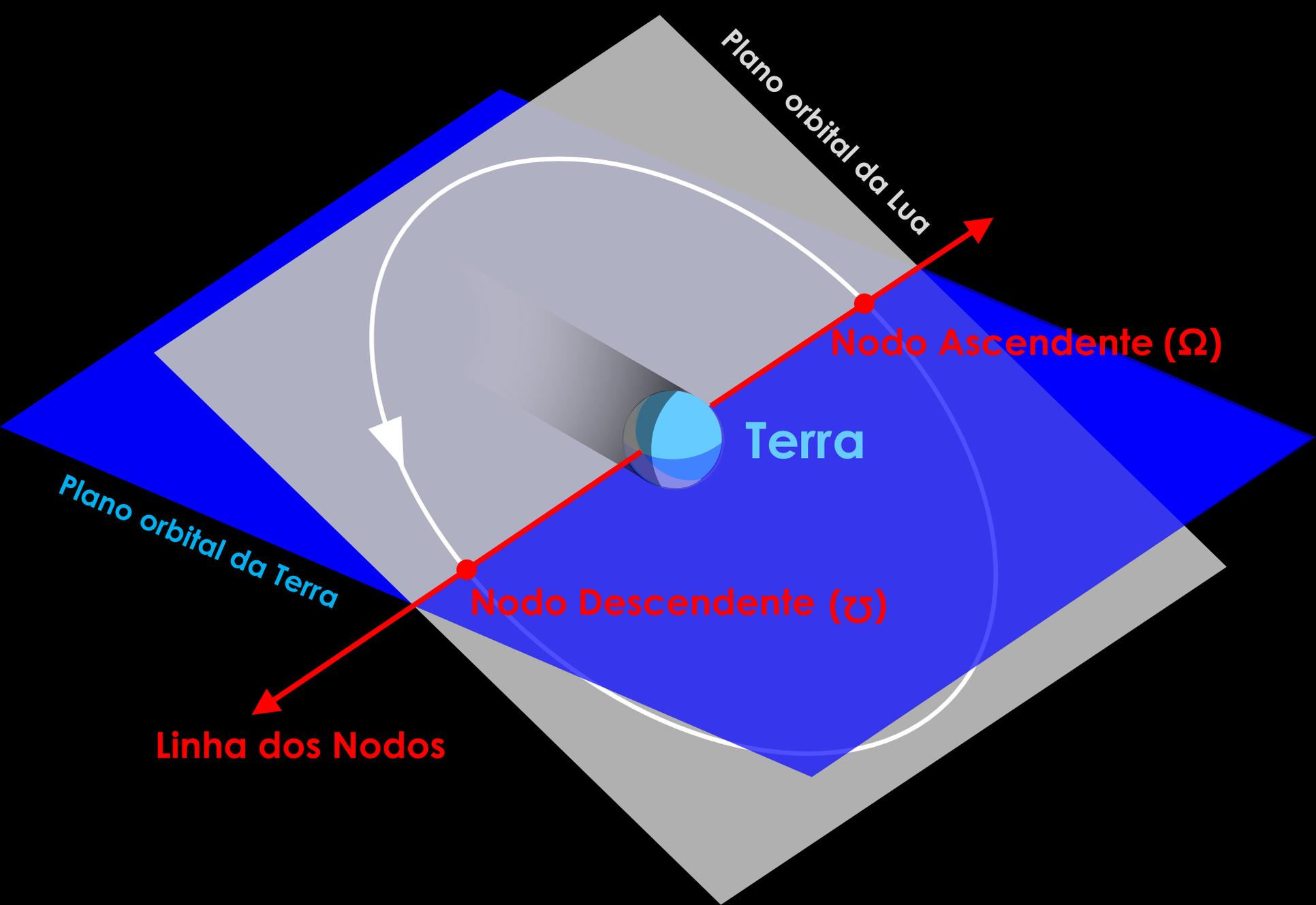


Figura fora de escala

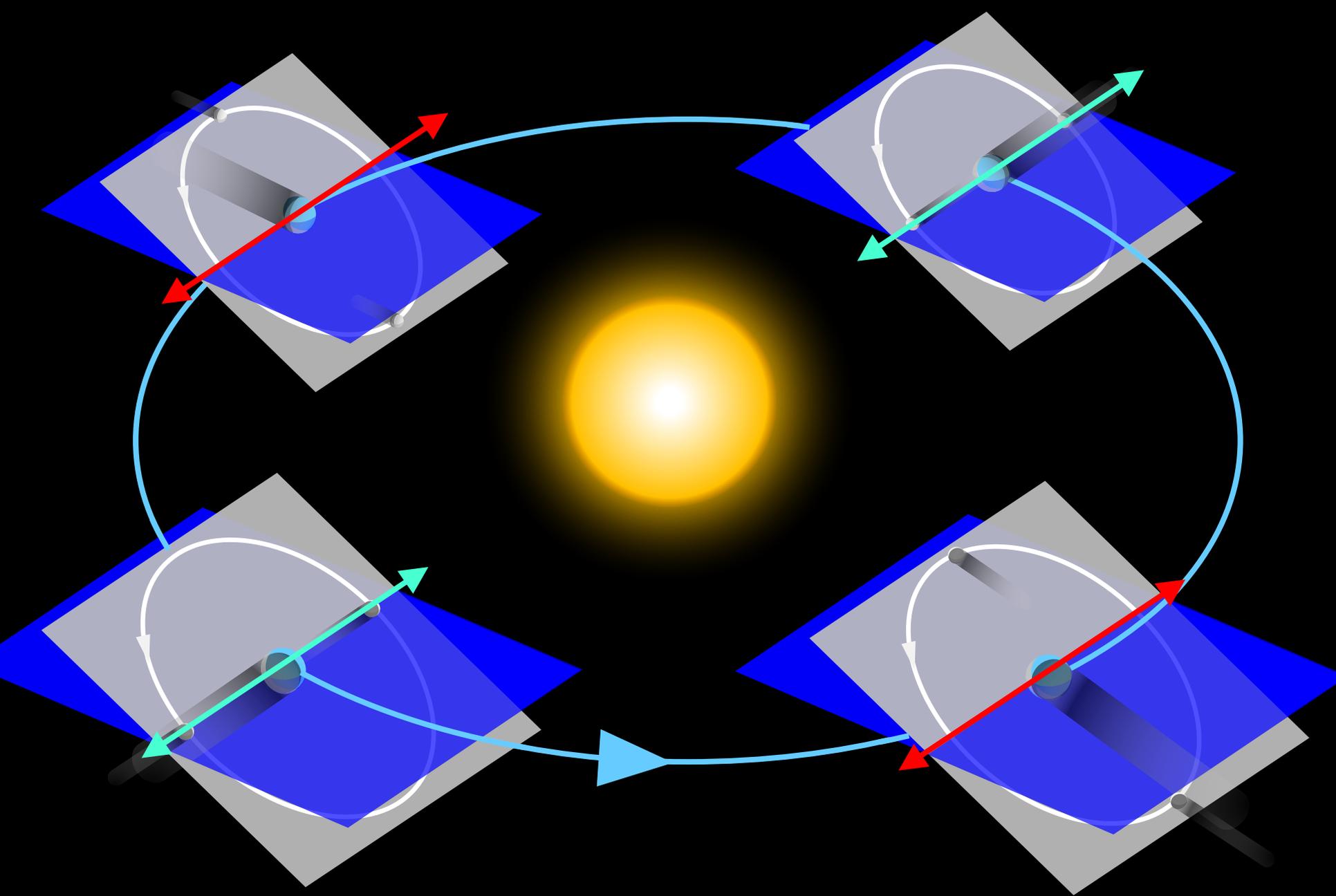


Figura fora de escala

A estrutura das sombras

Umbra

Figura fora de escala

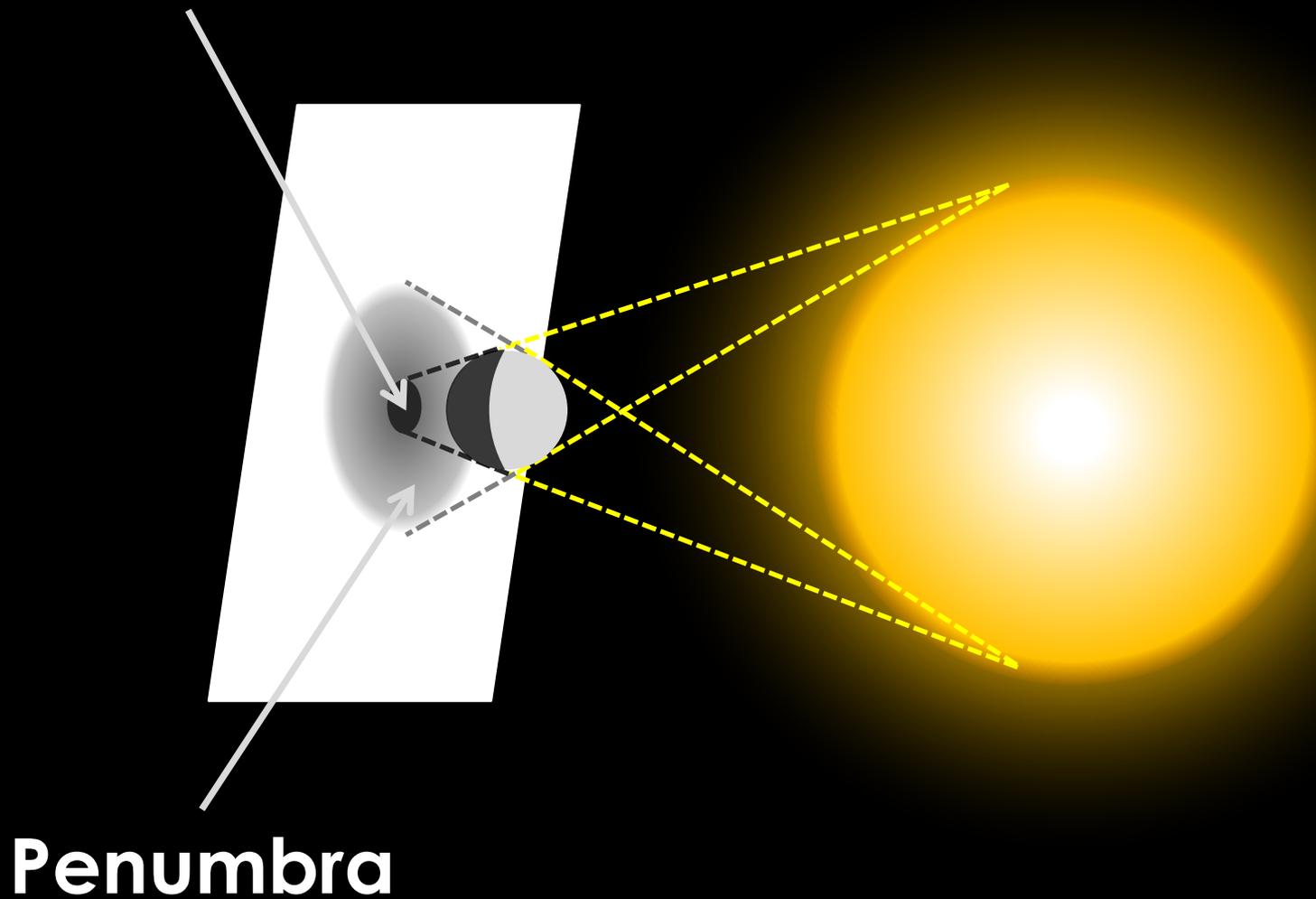
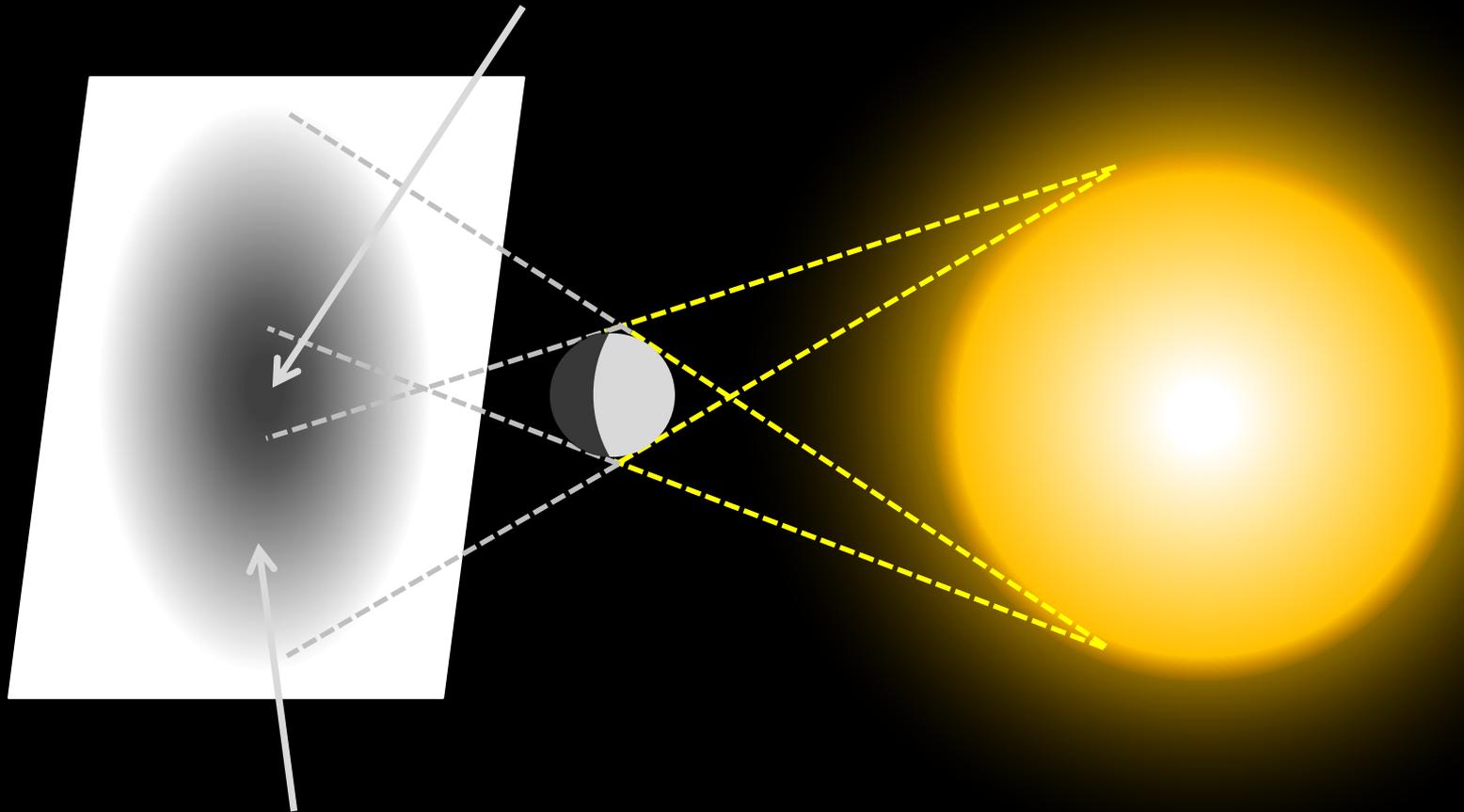


Figura fora de escala

Antiumbra



Penumbra

Eclipses Solares

tipos:

❖ **Total**

❖ **Anular**

❖ **Parcial**

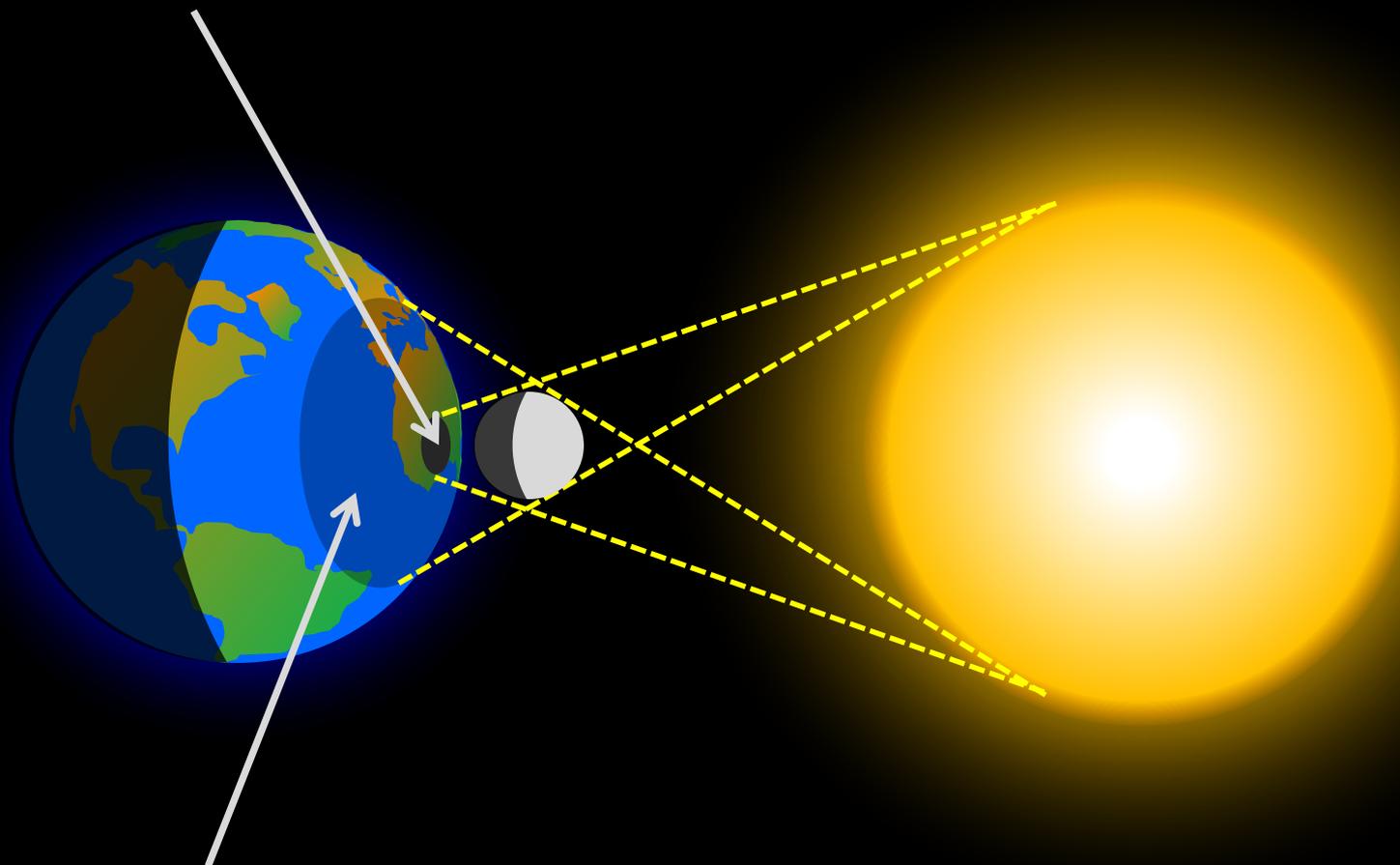
eclipse solar total



Crédito da imagem: NASA/Aubrey Gemignani

Umbra

Figura fora de escala



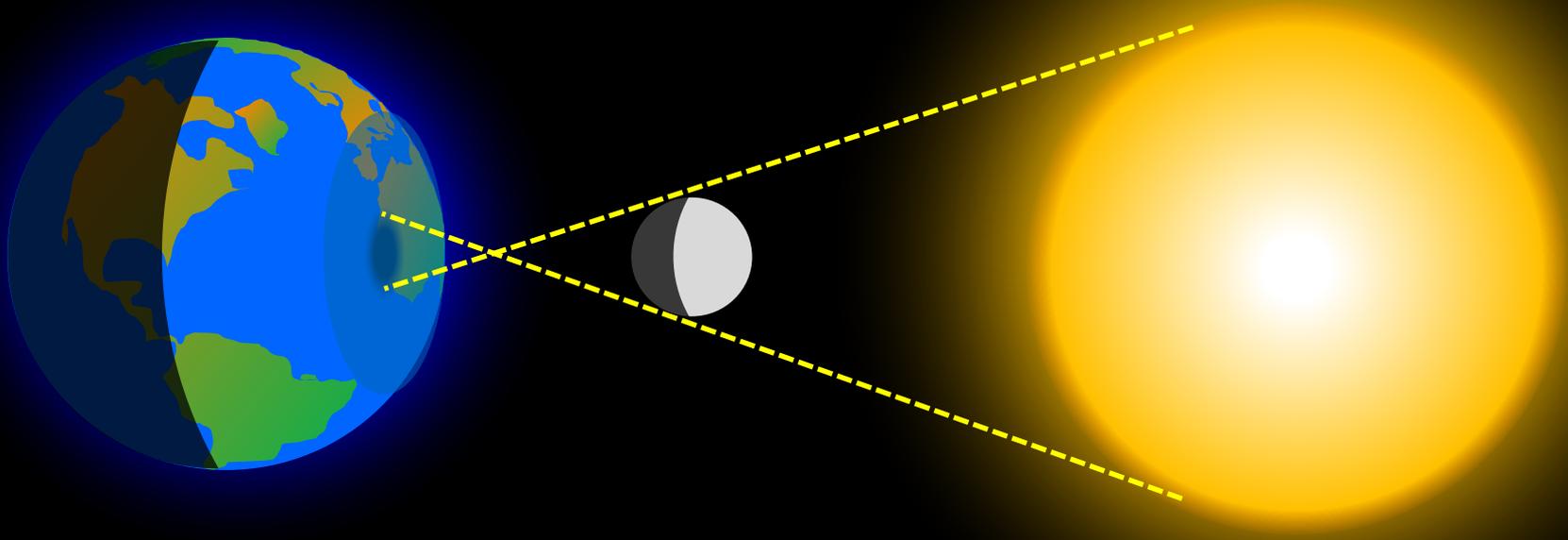
Penumbra

eclipse solar anular



Crédito da imagem: *Wikimedia Commons user Kevin Baird, under c.c.-by-s.a.-3.0.*

Figura fora de escala



Crédito da imagem: André Luiz da Silva/CDA/CDCC

Perigeu e apogeu

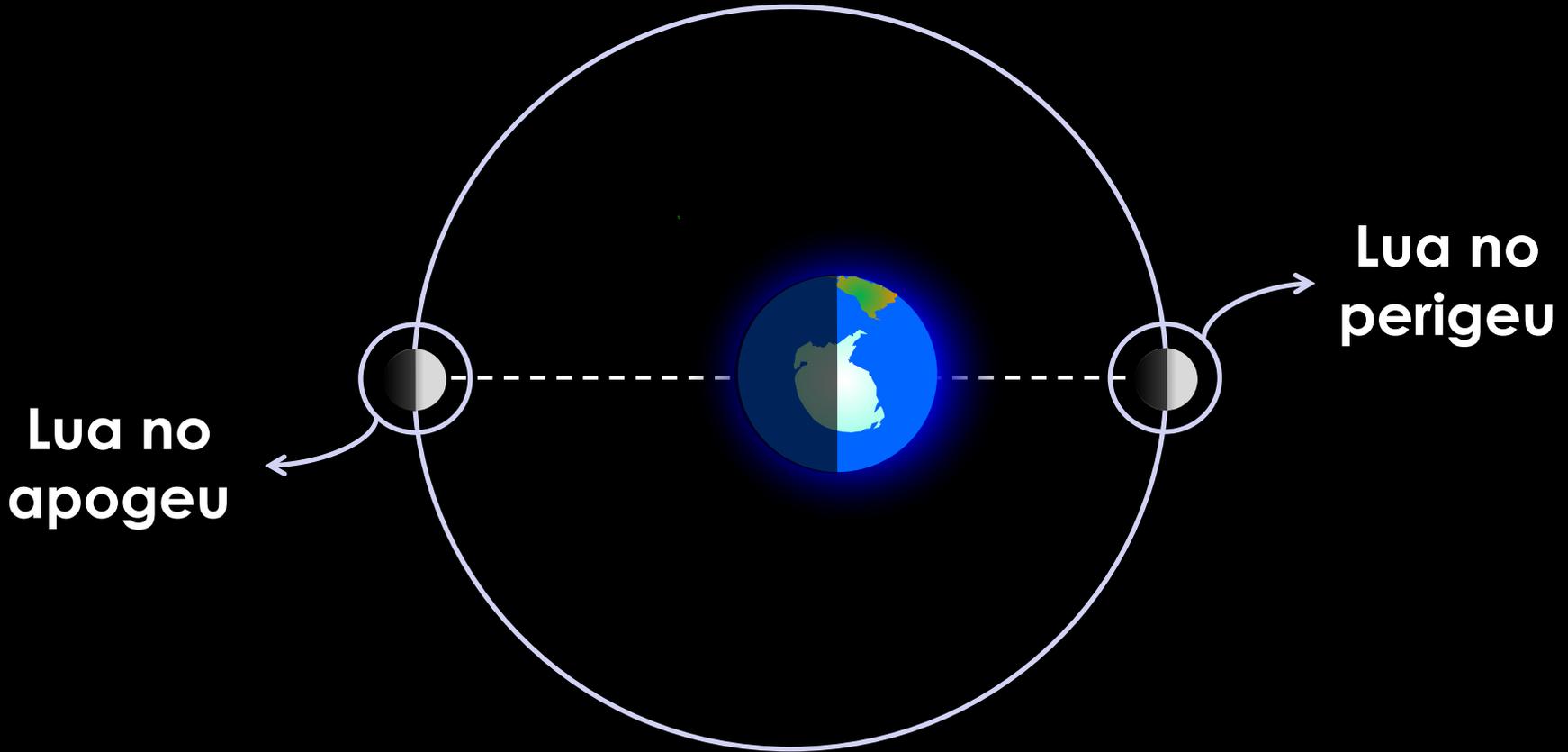
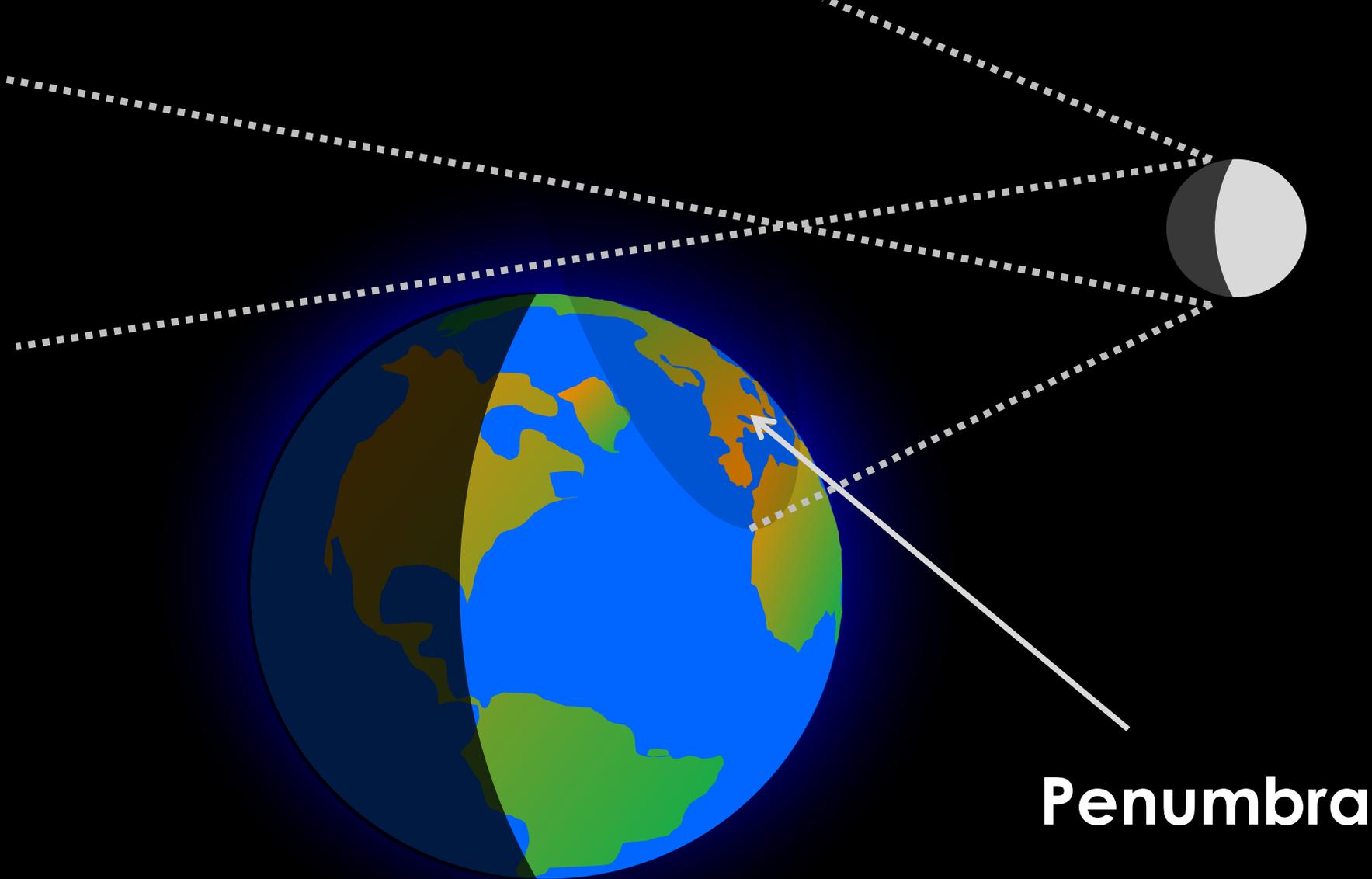


Figura fora de escala

eclipse solar parcial





Penumbra

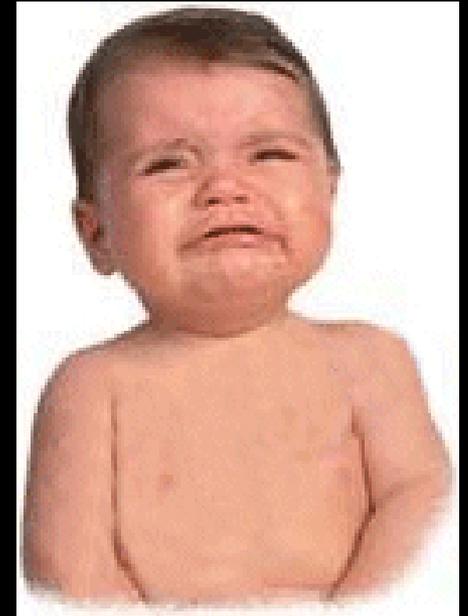
Figura fora de escala

Crédito da imagem: André Luiz da Silva/CDA/CDCC

Próximos eclipses solares

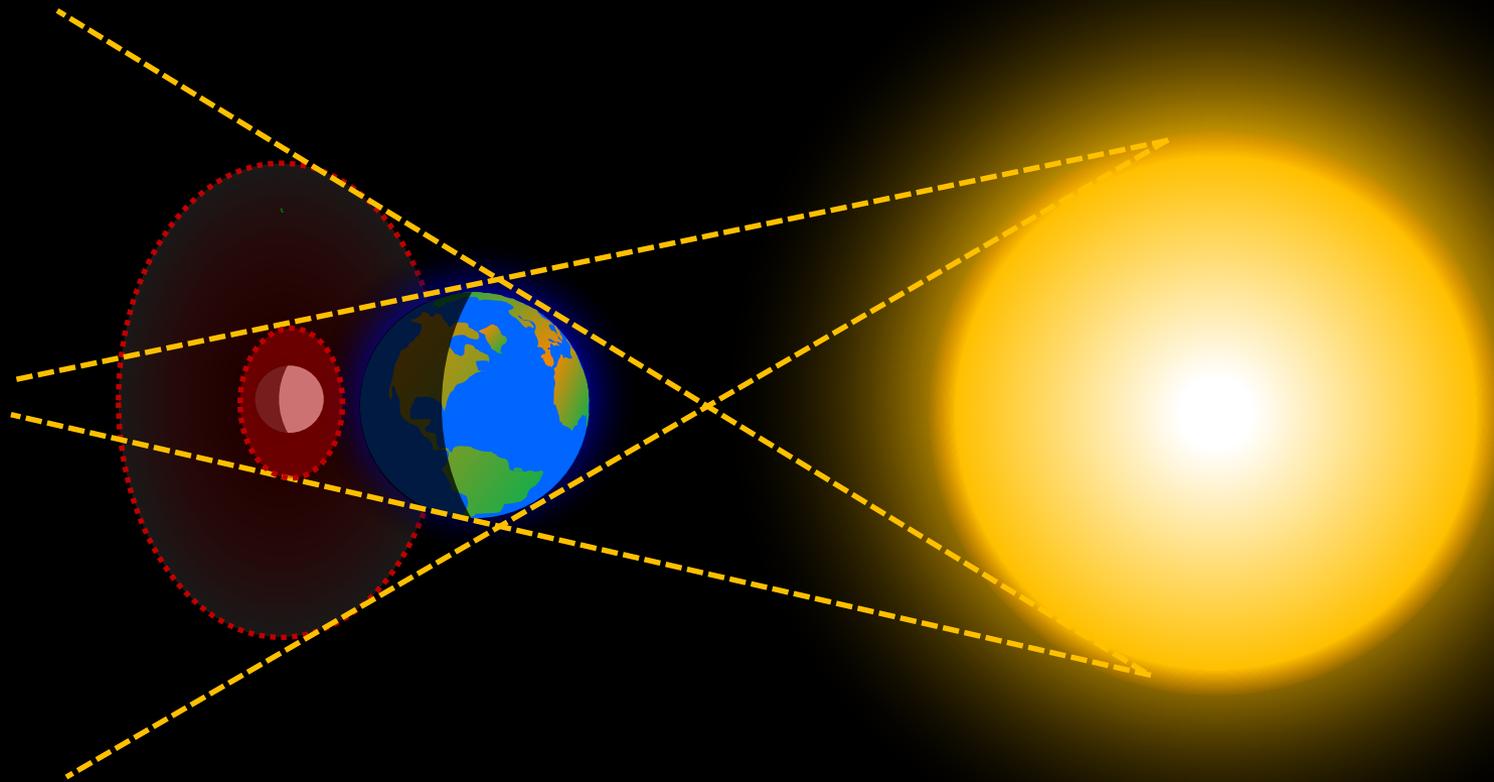
Próximos eclipses solares totais visíveis do Brasil:

- ❖ 12 de agosto de 2045
- ❖ 11 de maio de 2059



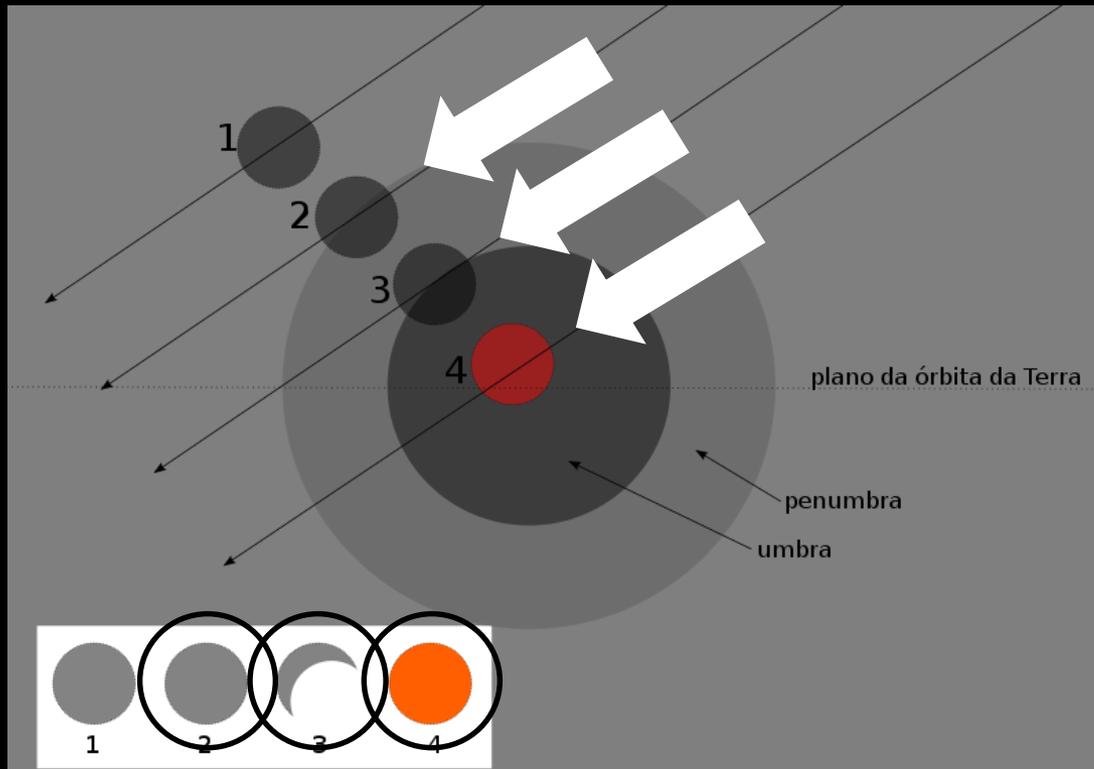
Eclipses Lunares

Figura fora de escala



Crédito da imagem: André Luiz da Silva/CDA/CDCC

Tipos de eclipses lunares



❖ **Penumbral**

❖ **Parcial umbral**

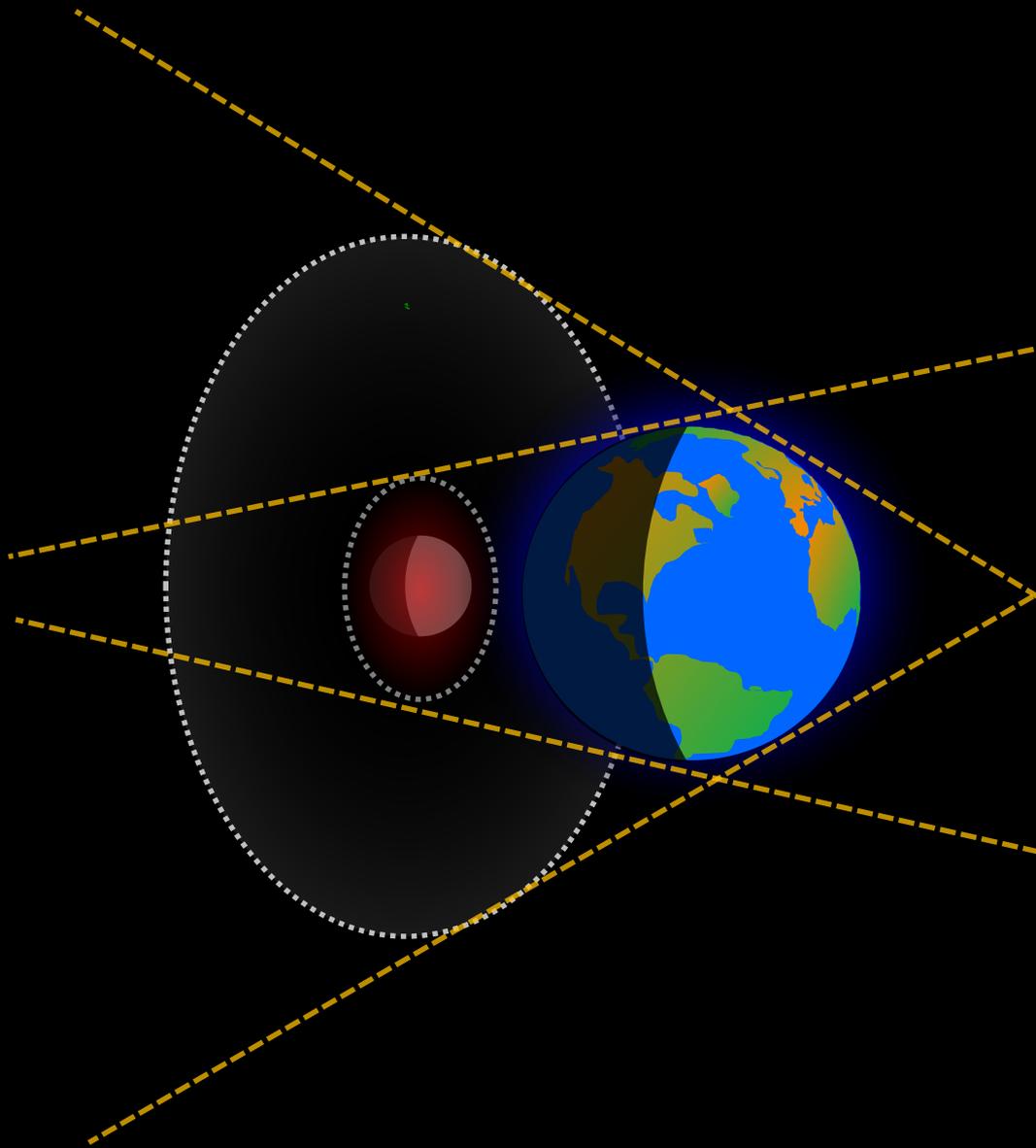
❖ **Total**

eclipse lunar total

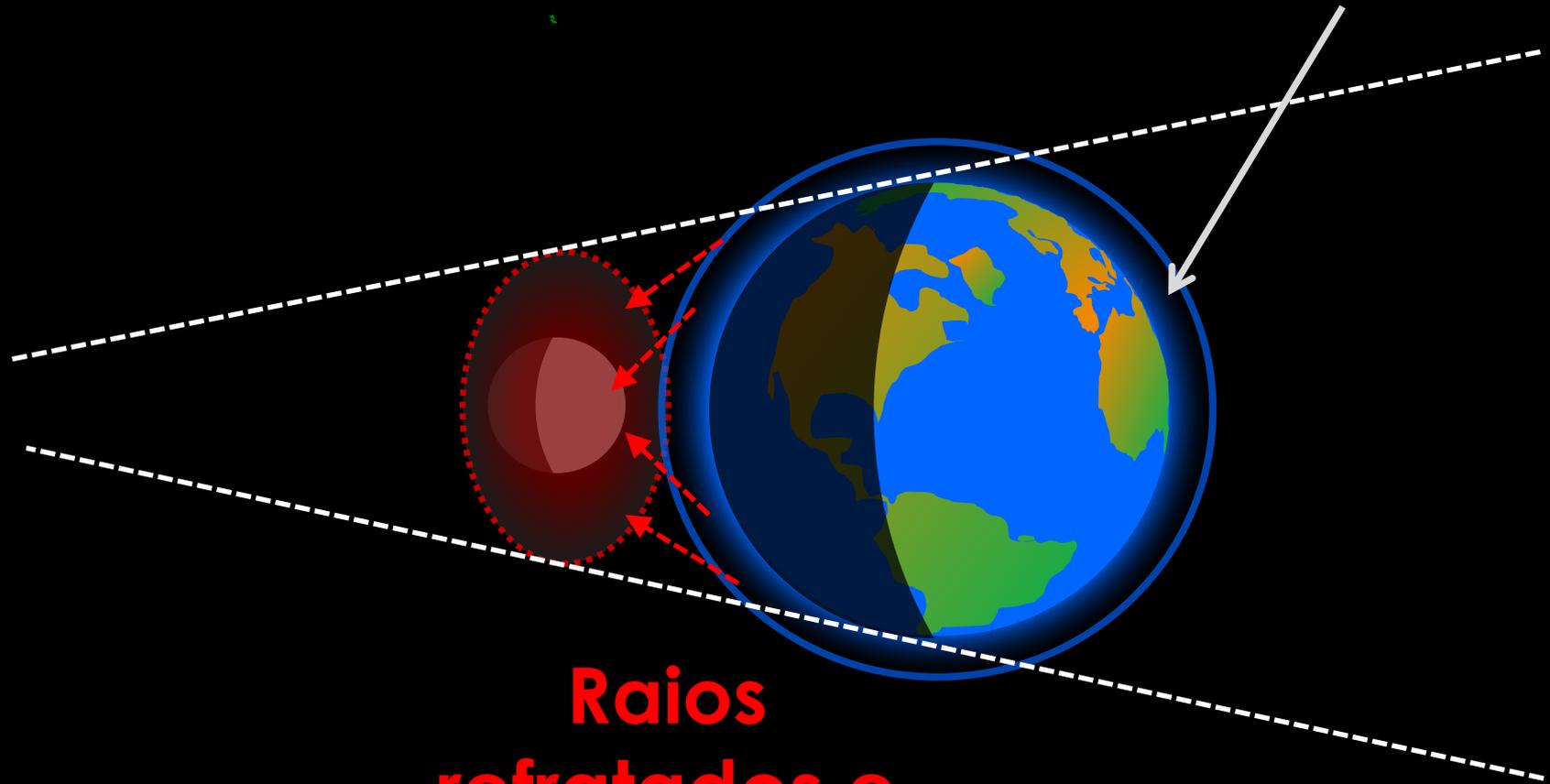


Crédito da imagem: NASA

Figura fora de escala



Atmosfera



**Raios
refratados e
espalhados**

Figura fora de escala

Eclipse Lunar visto da Lua

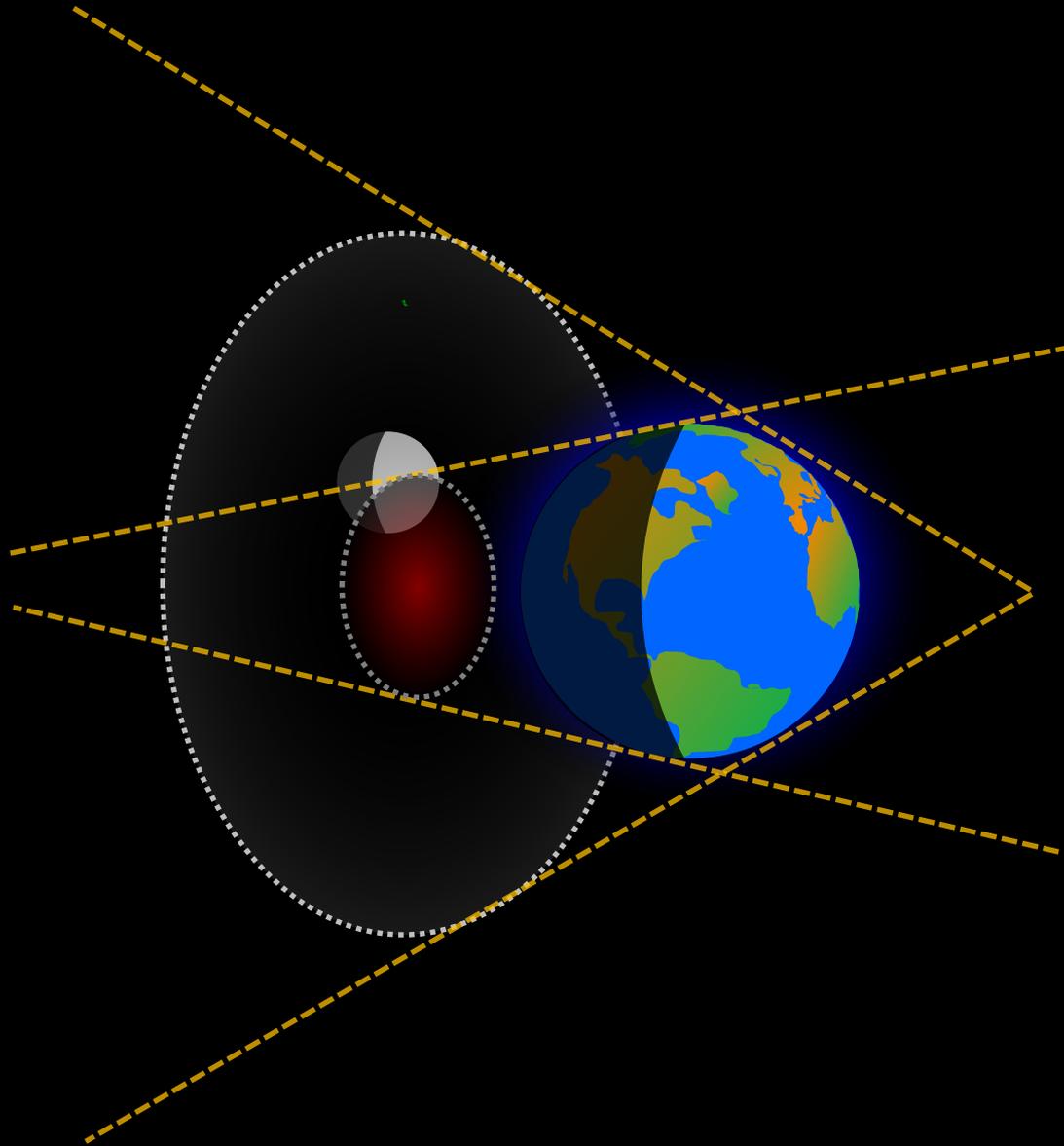


Eclipse lunar parcial umbral



Crédito da imagem: George Tarsoudis

Figura fora de escala



Eclipse lunar penumbral

Before Eclipse

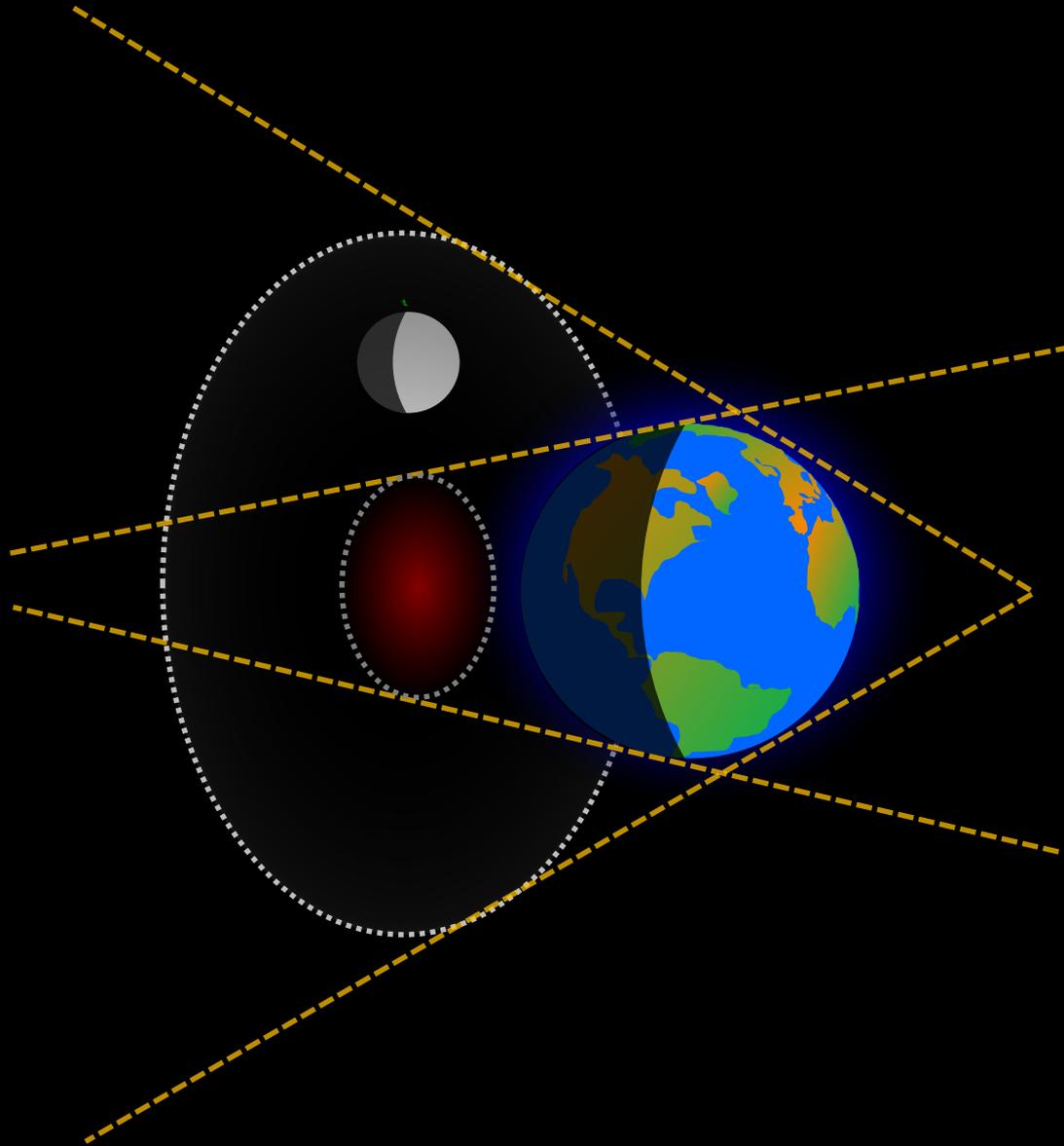


Mid-Eclipse



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Figura fora de escala



Próximo eclipse lunar total

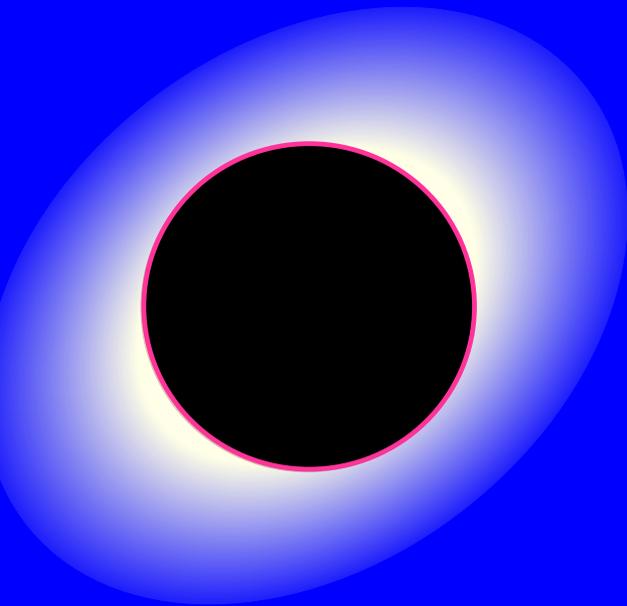
Próximo eclipse lunar total visível do Brasil

❖ 27 de julho de 2018 (total)

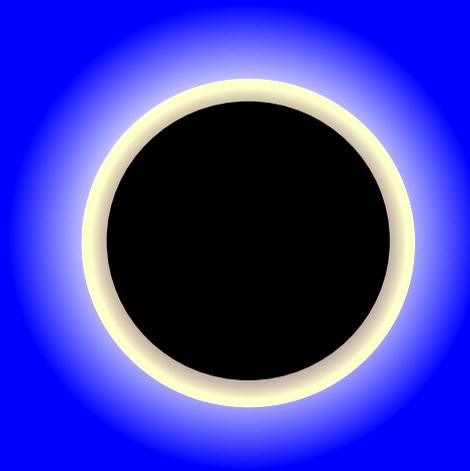


Resumindo: eclipses solares

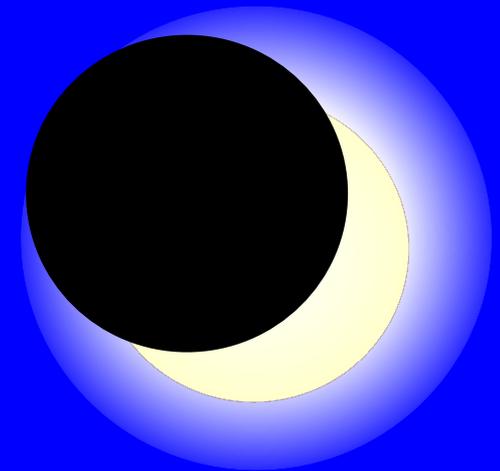
Total



Anular



Parcial



(e híbrido)

Resumindo... Eclipses lunares

Total



Parcial
umbral



Penumbral



Data e visibilidade dos próximos eclipses

