

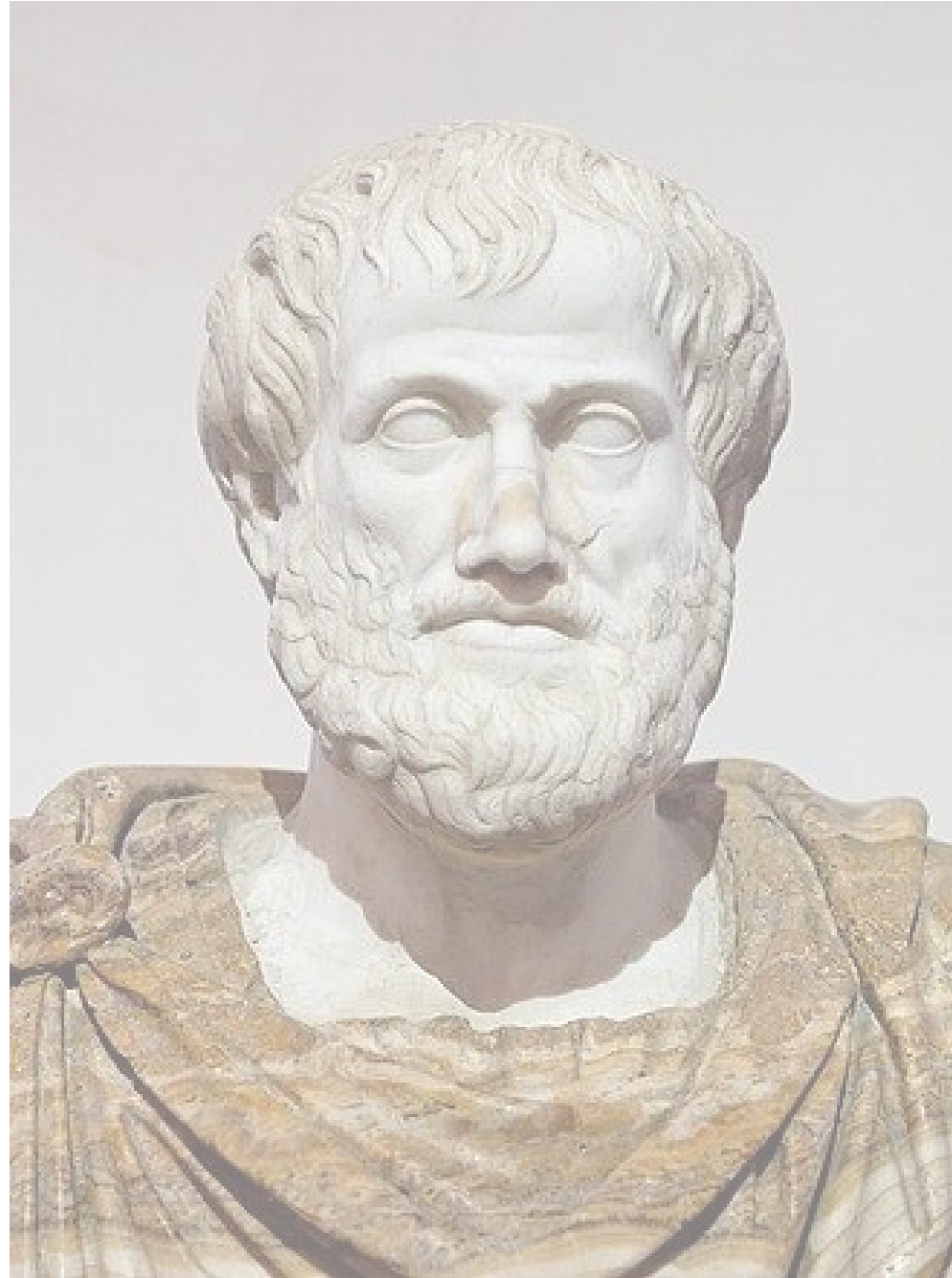
2024

# Gödel ve Ontolojik Kanıtı

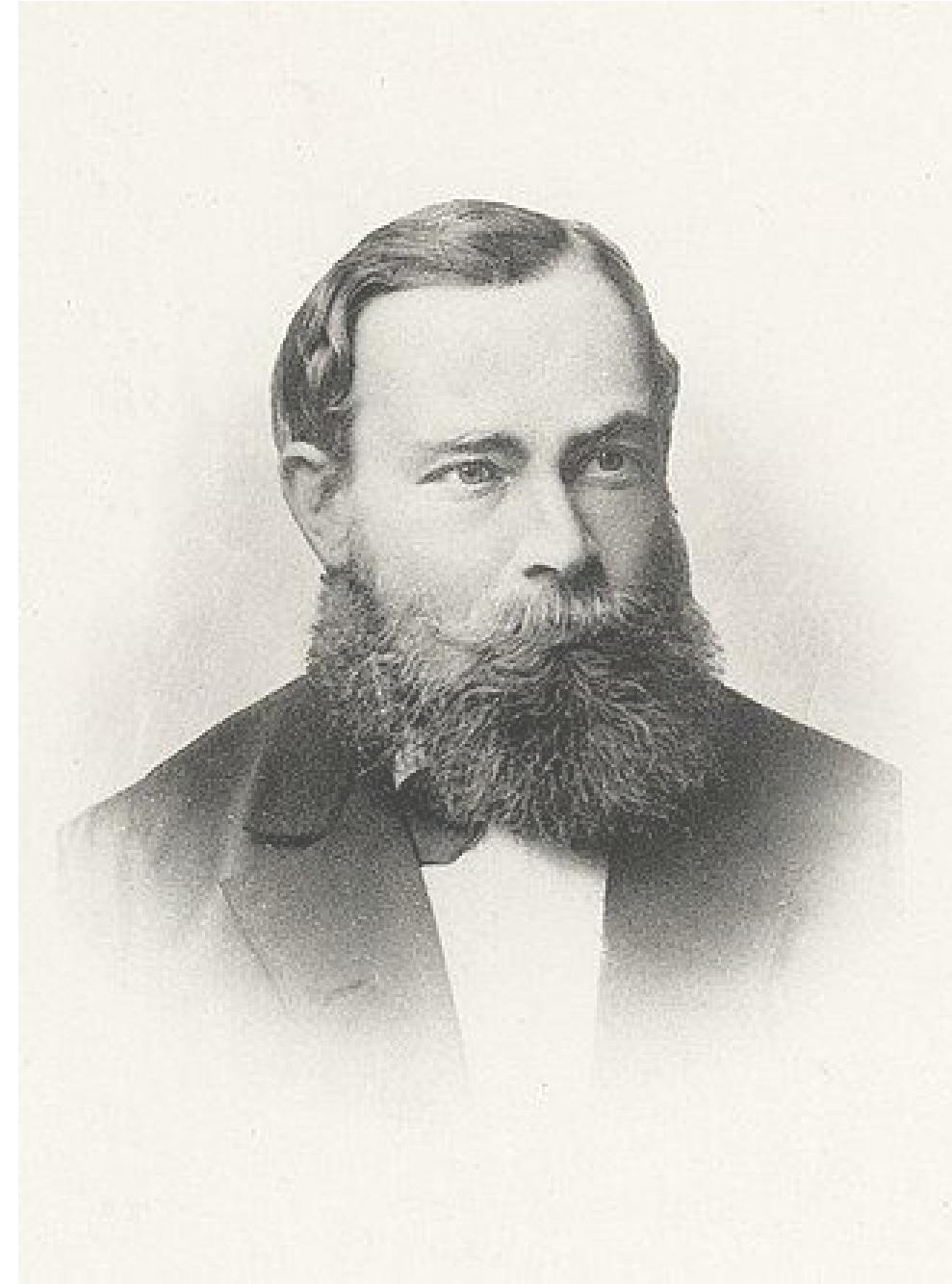
Omer Mert Coskun

**Kurt Gödel (1906)**

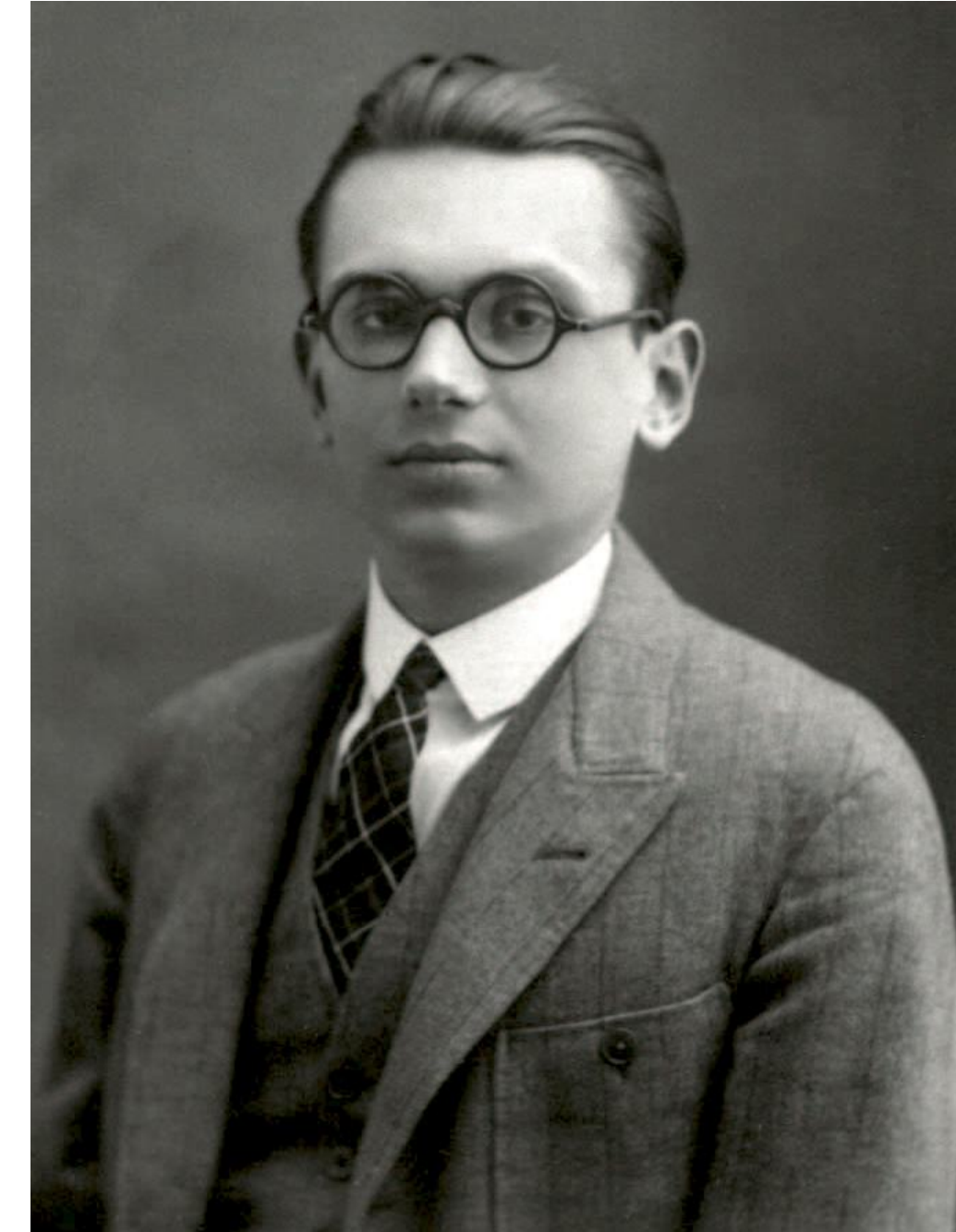




**Aristoteles**  
**MÖ 384**



**Gottlob Frege**  
**1879**



**Kurt Gödel**  
**1906**



Kurt Gödel'in modern mantıktaki başarısı eşsiz ve anıtsaldır—gerçekten de bu sadece bir anıt değil, uzayda ve zamanda çok uzaklara kadar görülebilecek bir dönüm noktasıdır.

...Mantık konusu, şüphesiz Gödel'in başarısı ile doğasını ve olanaklarını tamamen değiştirmiştir.

— John von Neumann

# Gödelin Ontolojik Kanıtı

$$\text{Ax. 1. } (P(\varphi) \wedge \Box \forall x(\varphi(x) \Rightarrow \psi(x))) \Rightarrow P(\psi)$$

$$\text{Ax. 2. } P(\neg\varphi) \Leftrightarrow \neg P(\varphi)$$

$$\text{Th. 1. } P(\varphi) \Rightarrow \Diamond \exists x \varphi(x)$$

$$\text{Df. 1. } G(x) \Leftrightarrow \forall \varphi (P(\varphi) \Rightarrow \varphi(x))$$

$$\text{Ax. 3. } P(G)$$

$$\text{Th. 2. } \Diamond \exists x G(x)$$

$$\text{Df. 2. } \varphi \text{ ess } x \Leftrightarrow \varphi(x) \wedge \forall \psi (\psi(x) \Rightarrow \Box \forall y(\varphi(y) \Rightarrow \psi(y)))$$

$$\text{Ax. 4. } P(\varphi) \Rightarrow \Box P(\varphi)$$

$$\text{Th. 3. } G(x) \Rightarrow G \text{ ess } x$$

$$\text{Df. 3. } E(x) \Leftrightarrow \forall \varphi (\varphi \text{ ess } x \Rightarrow \Box \exists y \varphi(y))$$

$$\text{Ax. 5. } P(E)$$

$$\text{Th. 4. } \Box \exists x G(x)$$

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$$\text{Th. 4. } \Box \exists x G(x)$$

# Notasyon

$\varphi(x)$

$\Rightarrow$

$\Diamond$

$P(\varphi)$

$G(x)$

$\forall x$

$\Box$

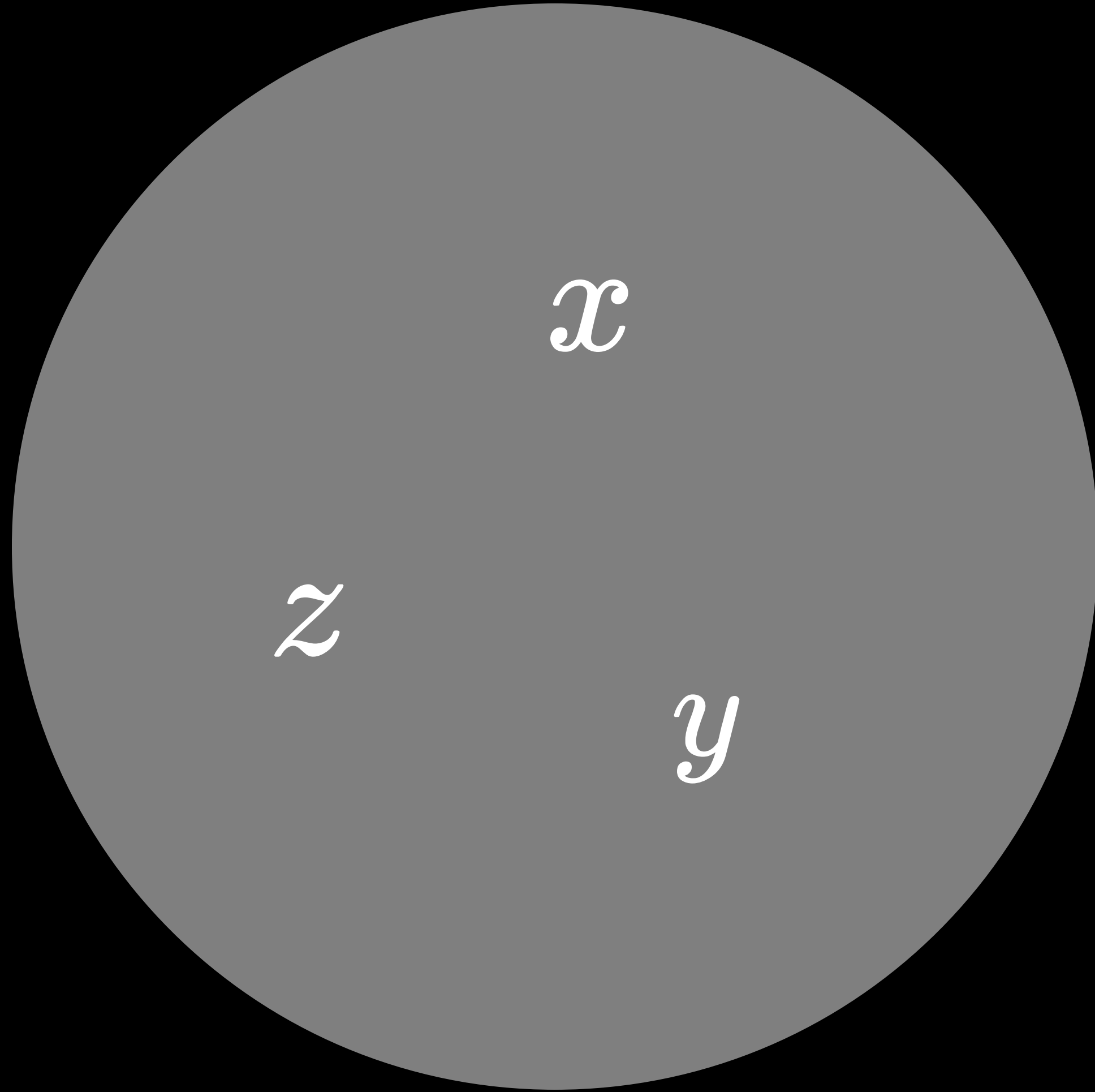
$\varphi \text{ ess } x$

$\exists x$

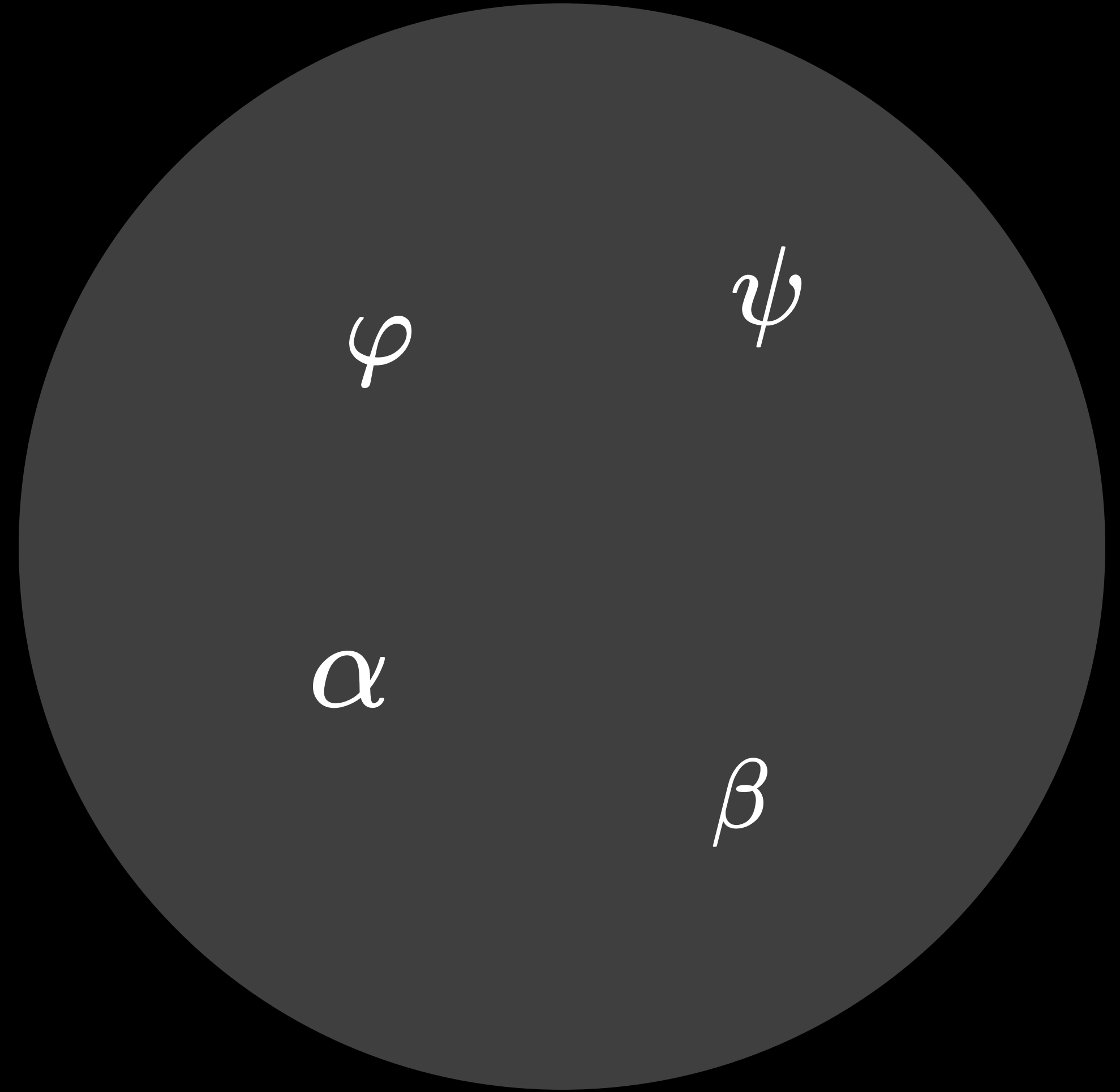
$E(x)$

$\neg \varphi$

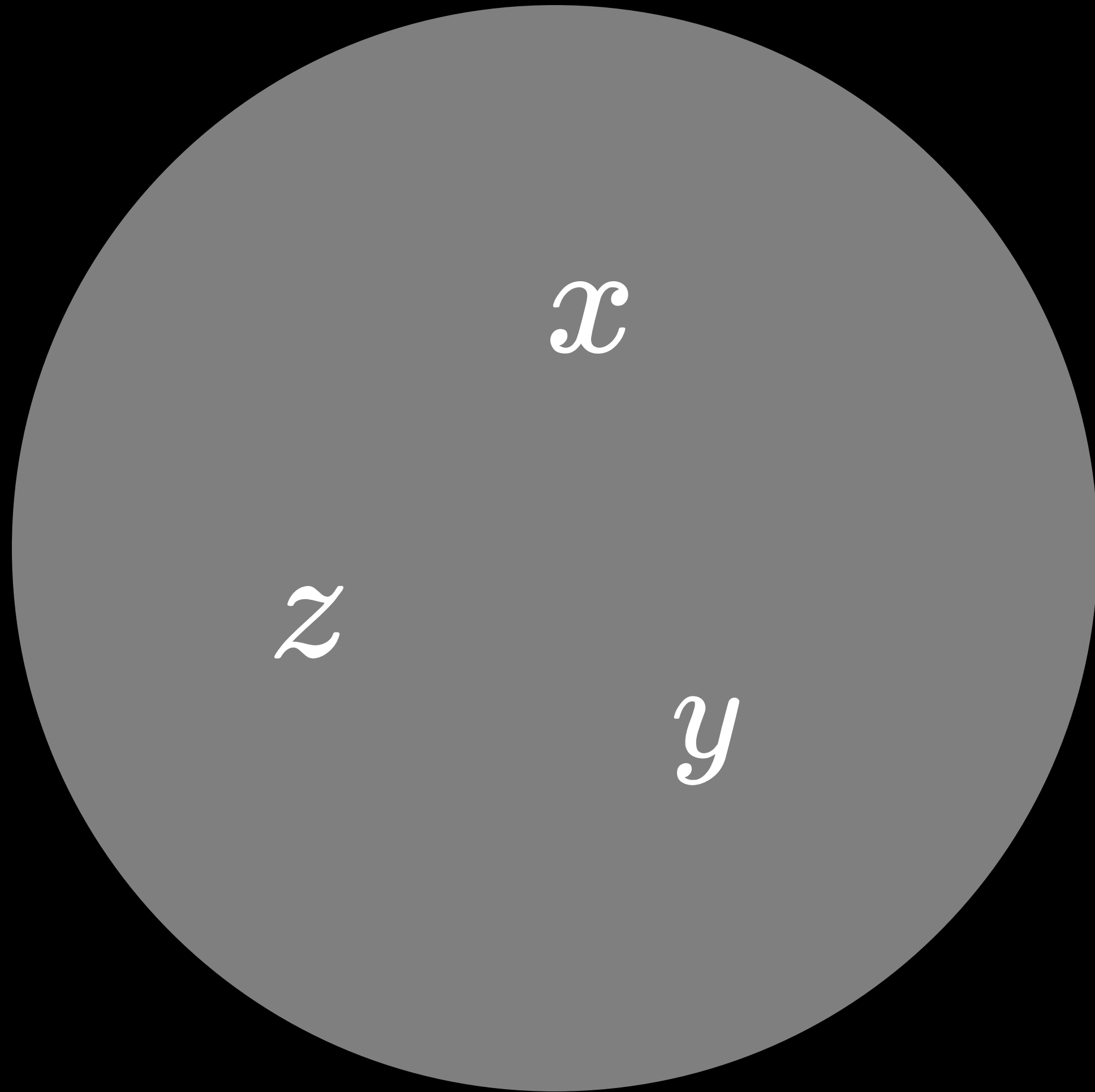




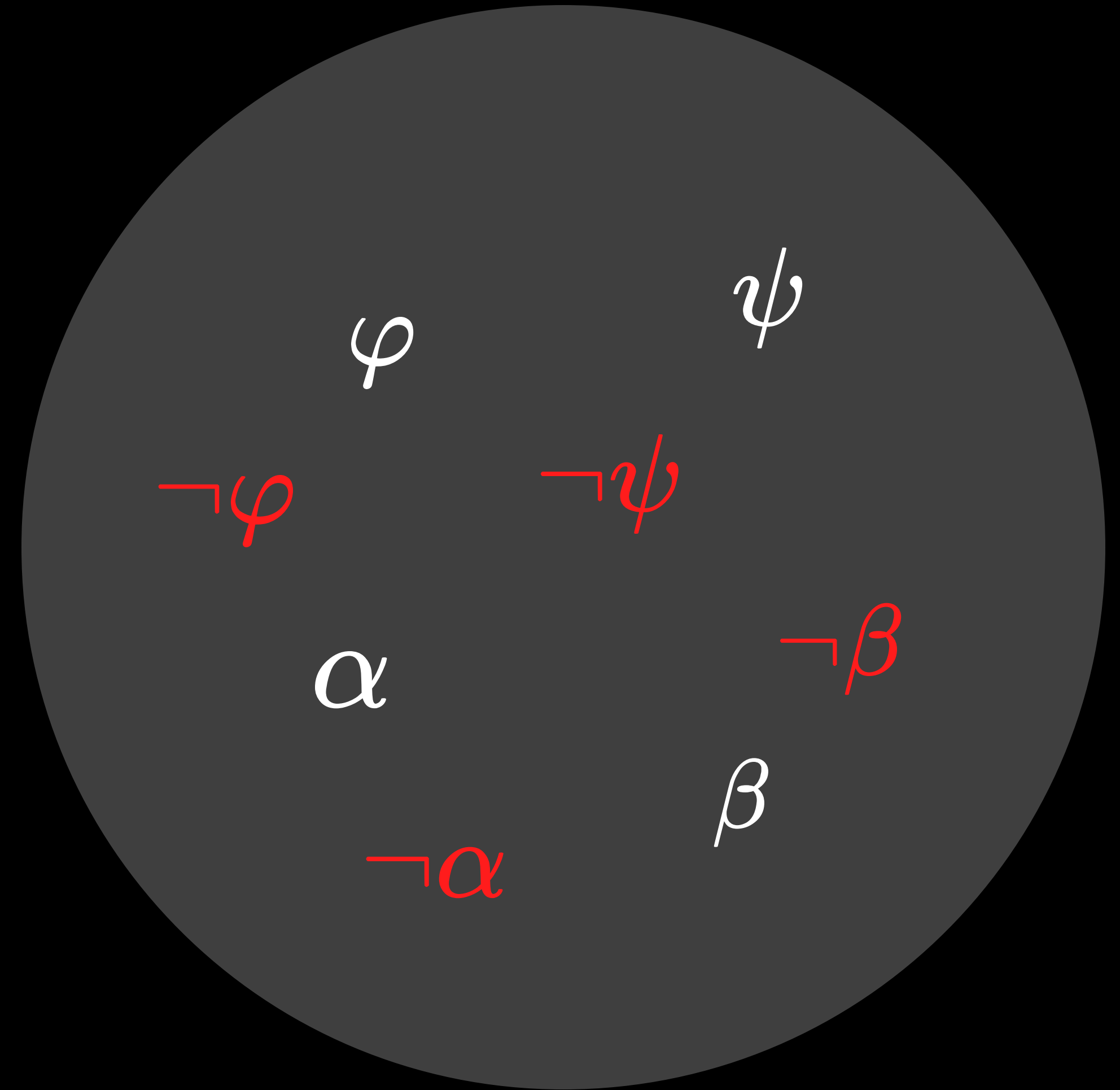
Objeler



Özellikler



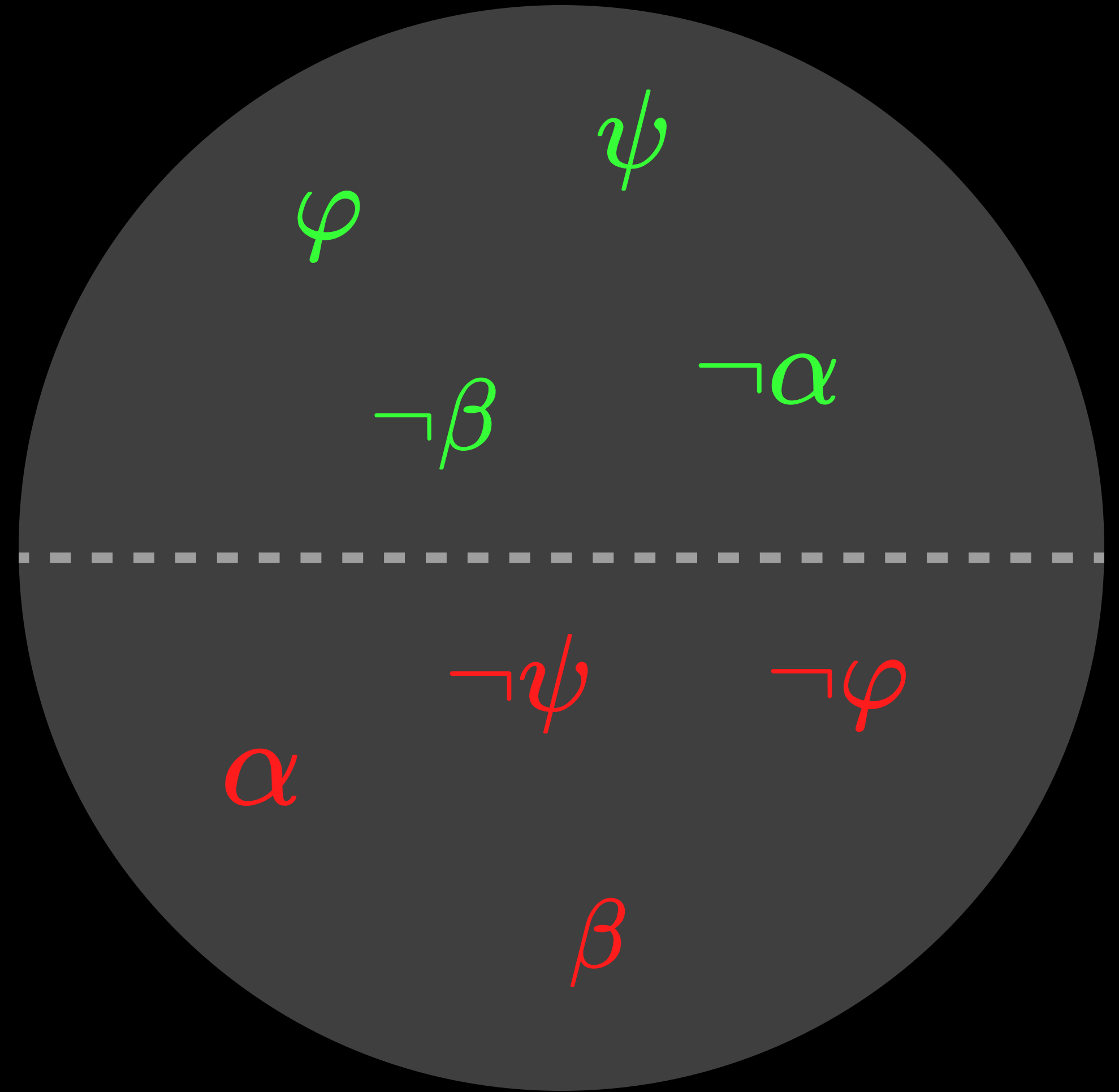
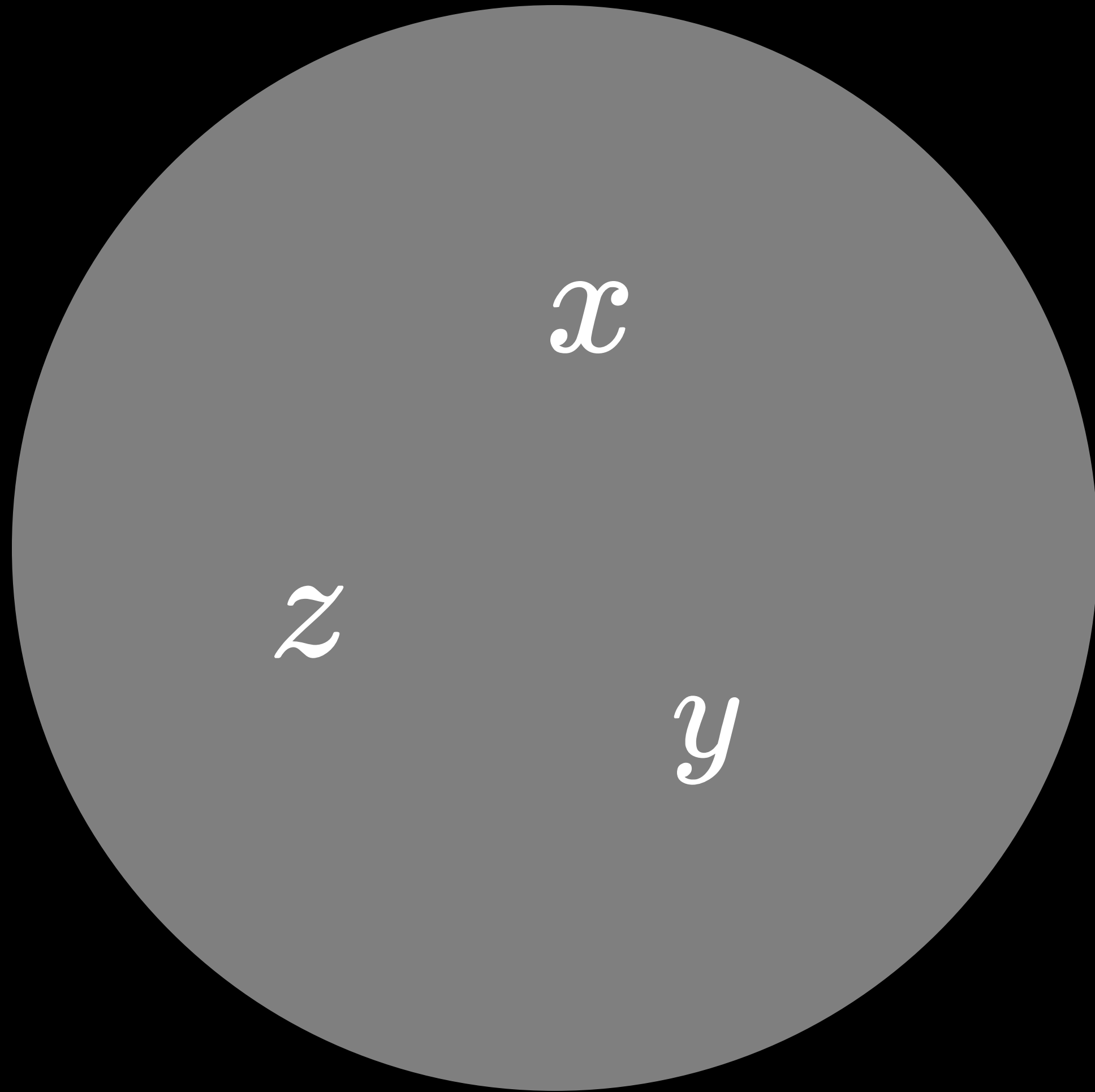
Objeler



Özellikler

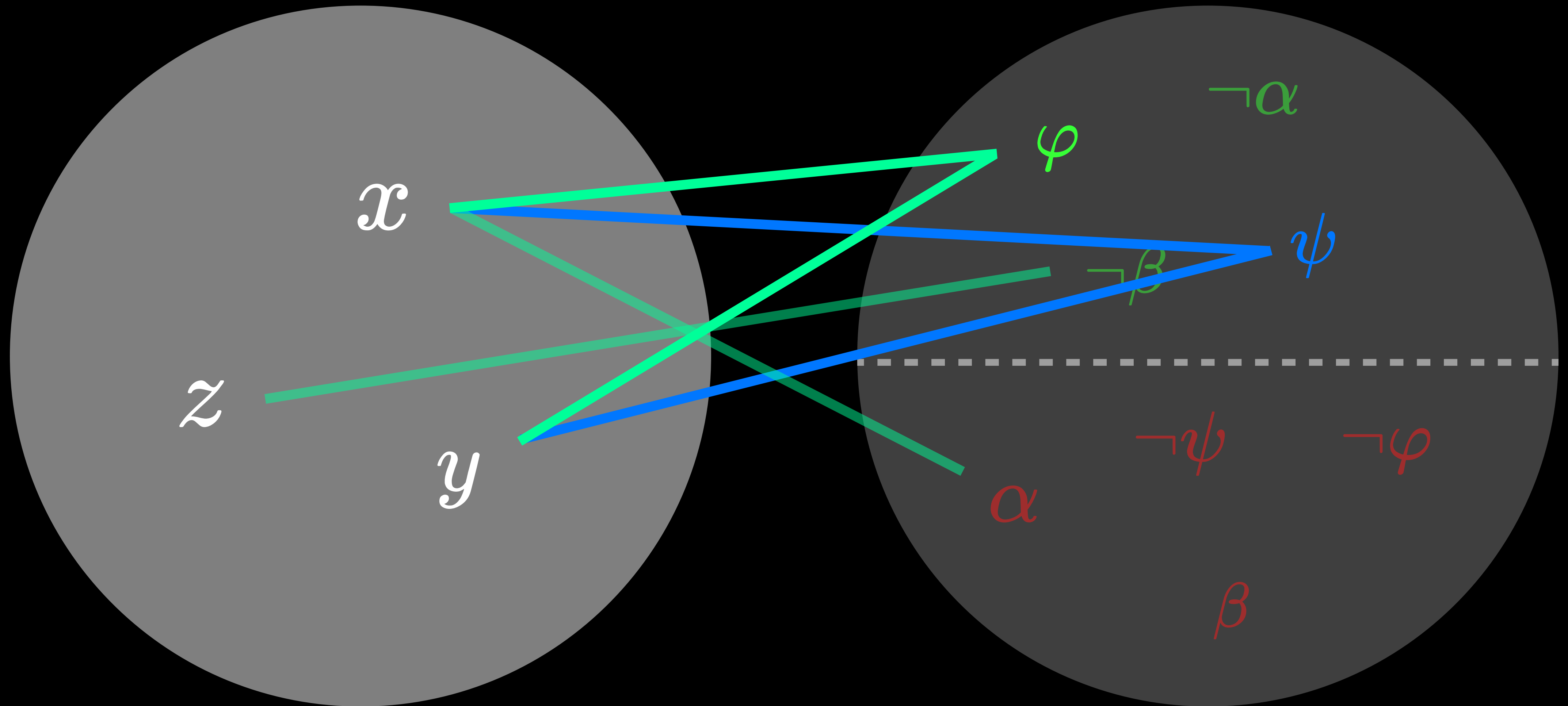
Ax. 2.  $P(\neg\varphi) \Leftrightarrow \neg P(\varphi)$

$P$

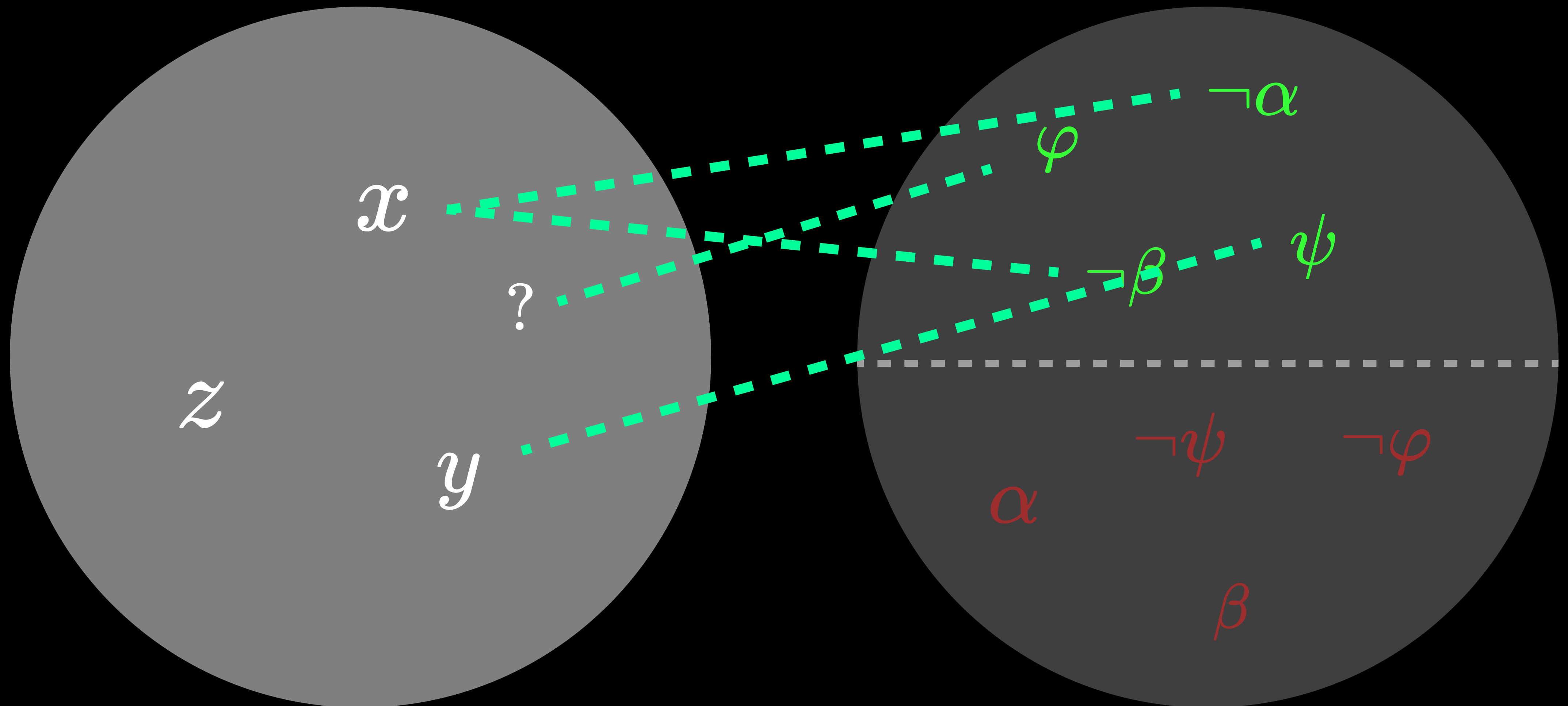


$\neg P$

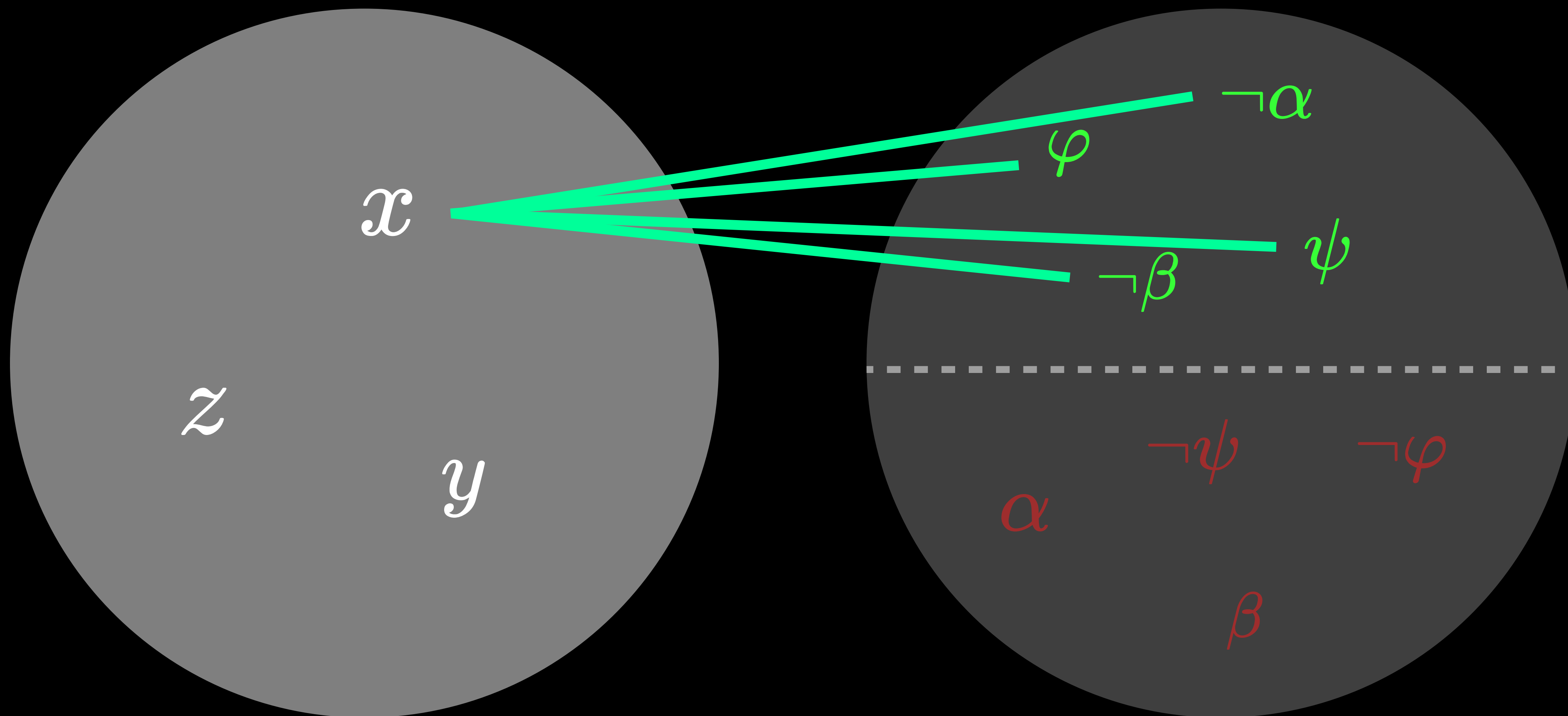
$$\text{Ax. 1. } (P(\varphi) \wedge \Box \forall x(\varphi(x) \Rightarrow \psi(x))) \Rightarrow P(\psi)$$



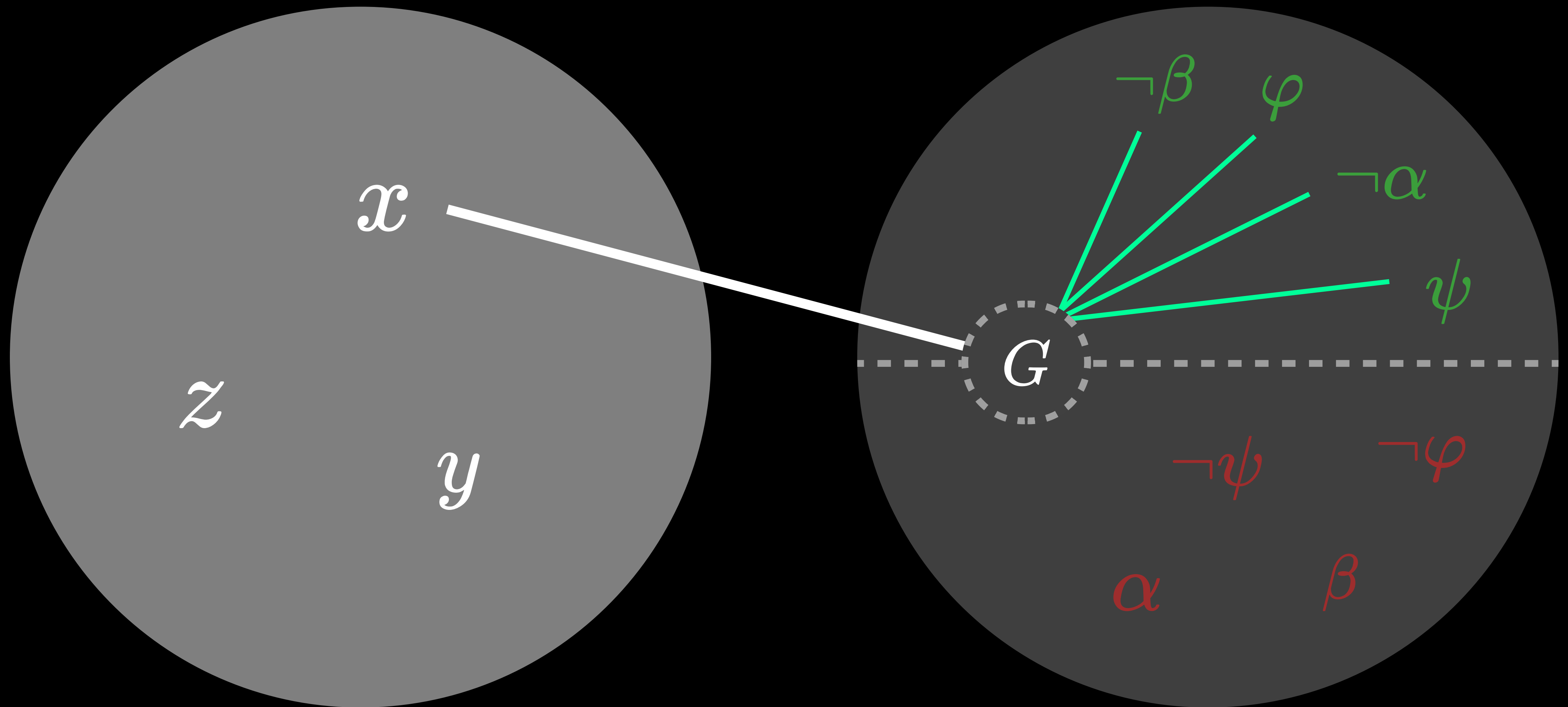
Th. 1.  $P(\varphi) \Rightarrow \Diamond \exists x \varphi(x)$



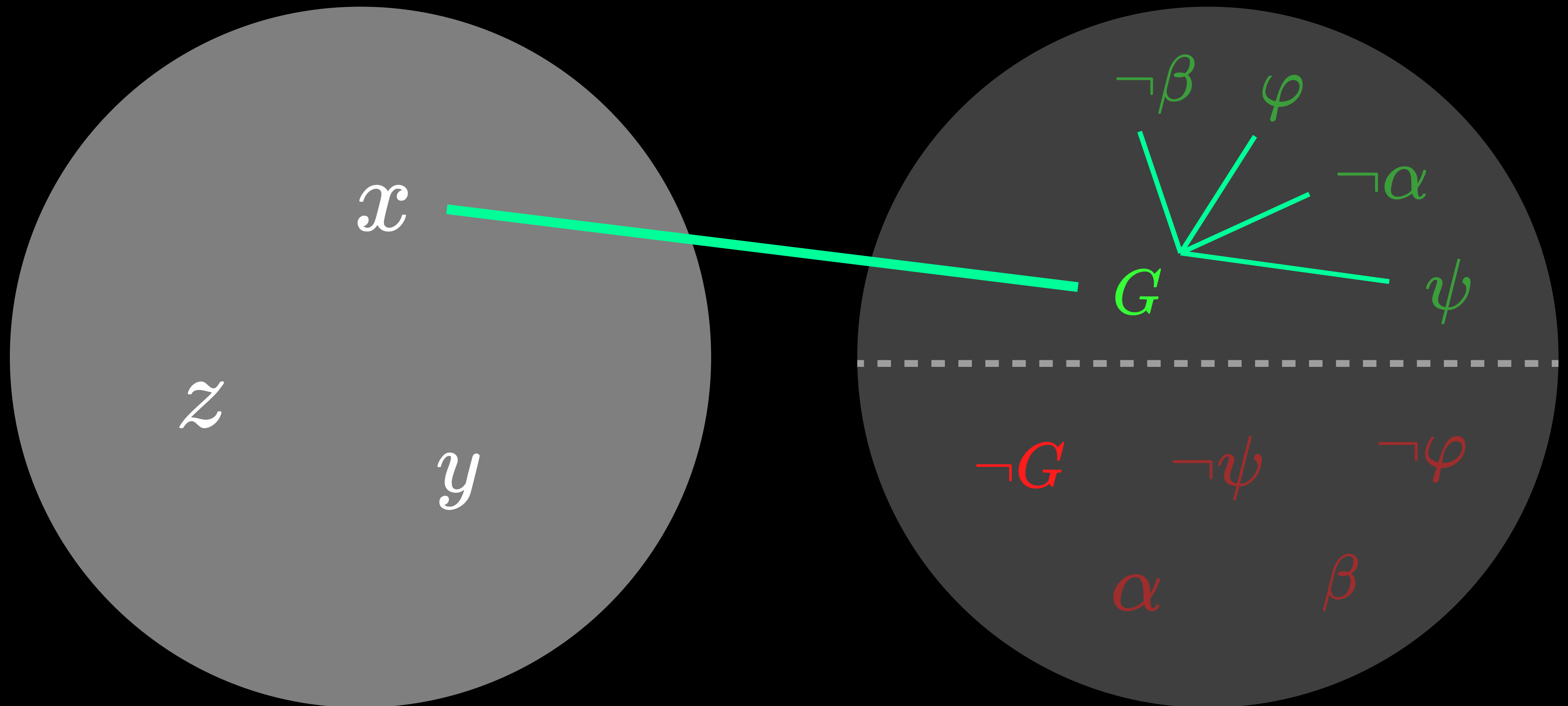
$$\text{Df. 1. } G(x) \Leftrightarrow \forall \varphi (P(\varphi) \Rightarrow \varphi(x))$$



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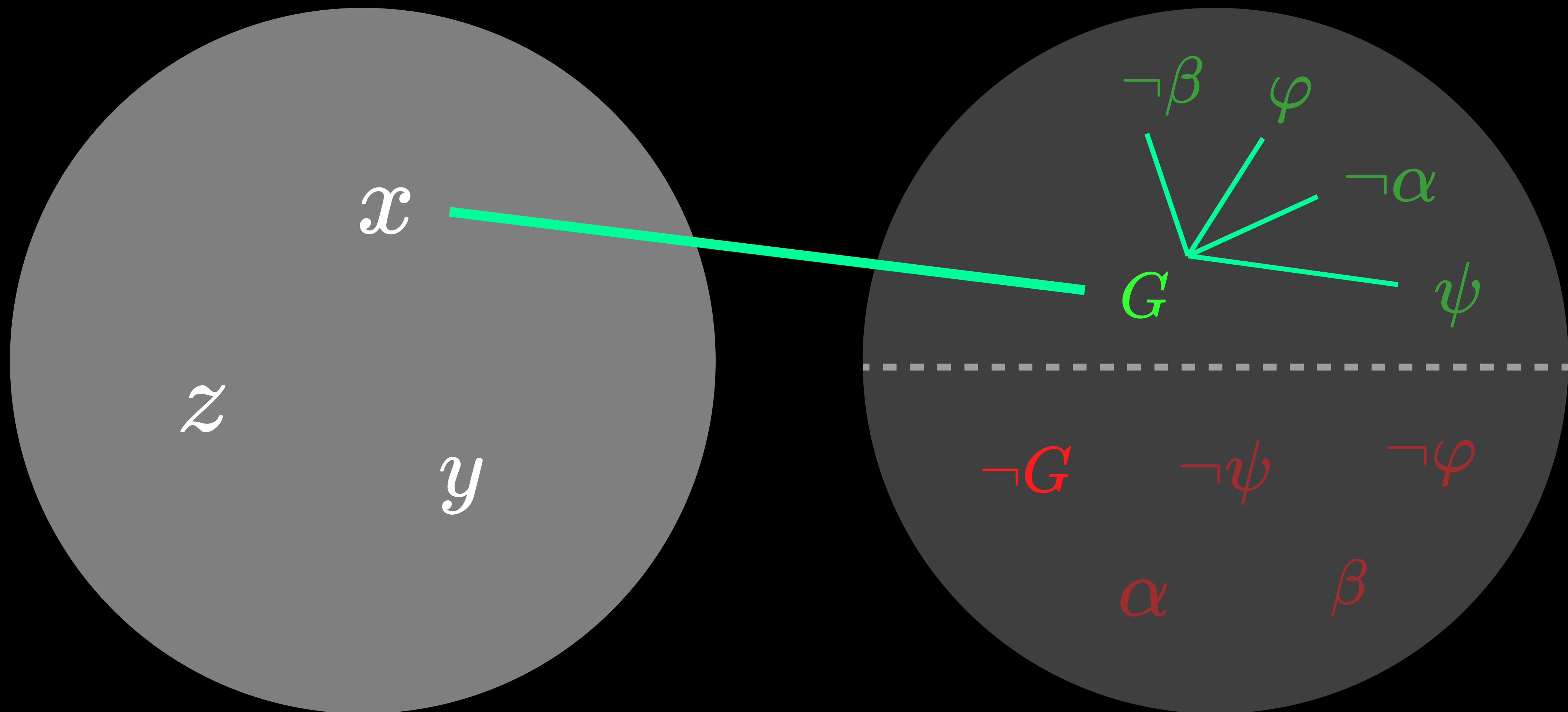


Ax. 3.  $P(G)$

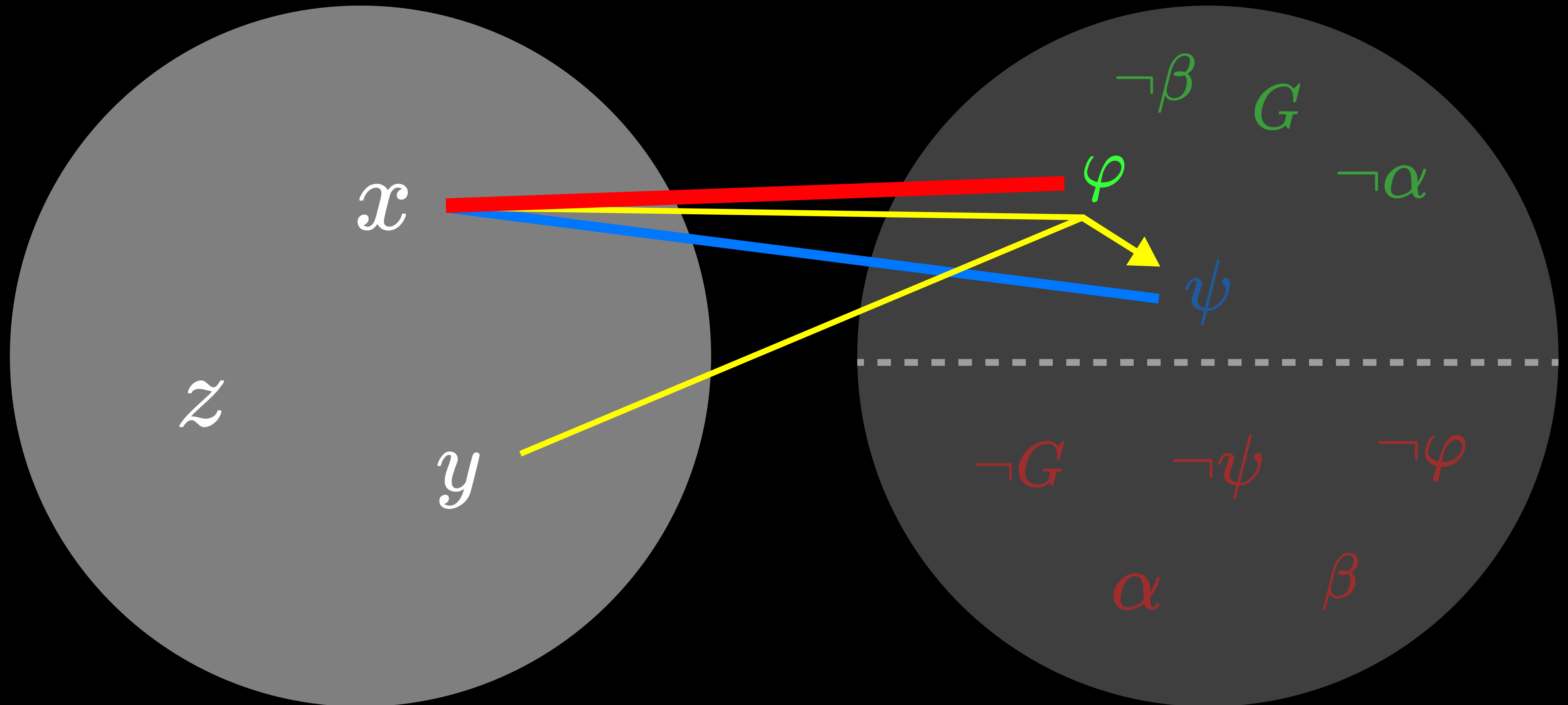




Th. 1.  $P(\varphi) \Rightarrow \Diamond \exists x \varphi(x)$   $\longrightarrow$  Th. 2.  $\Diamond \exists x G(x)$

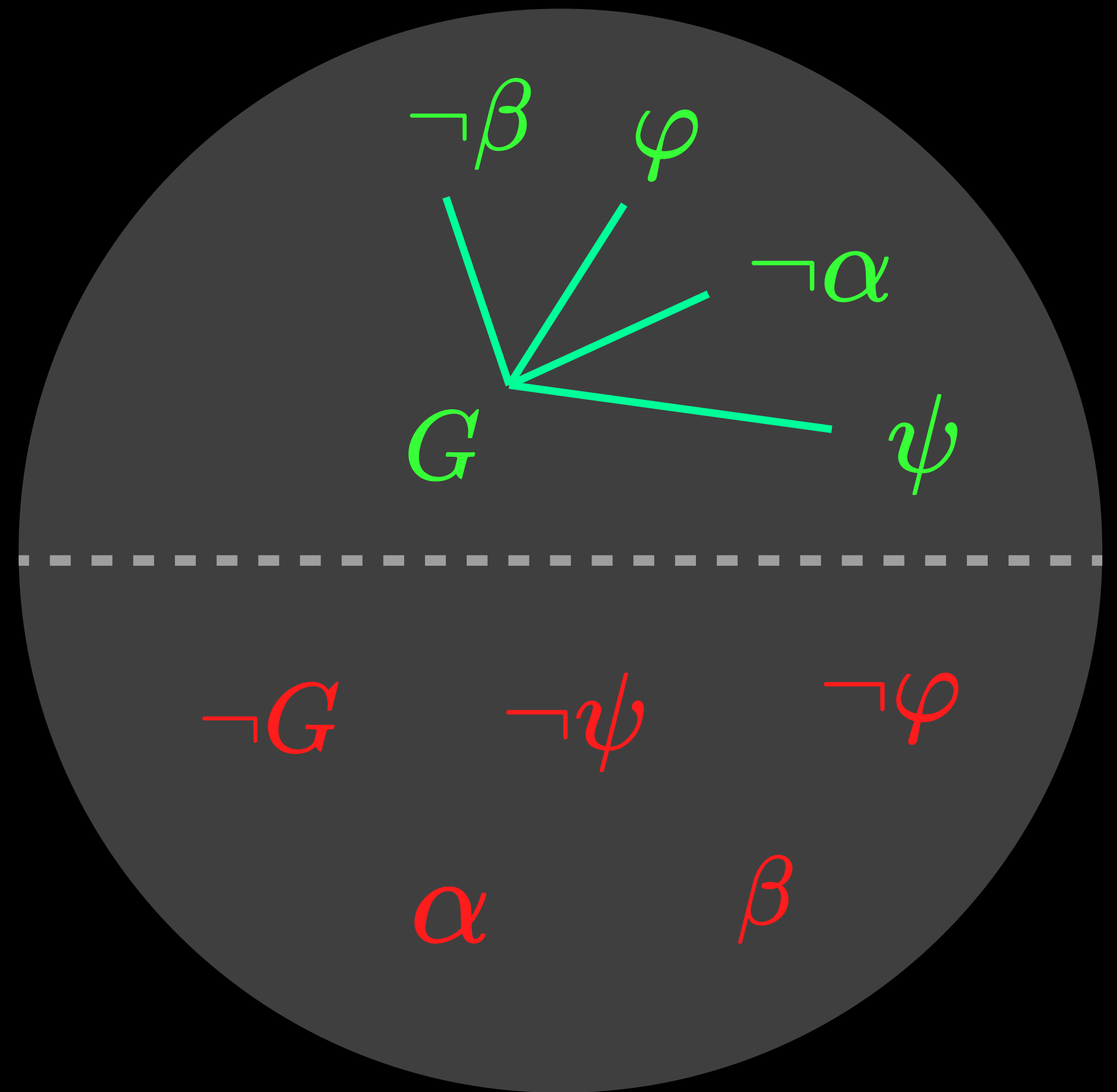
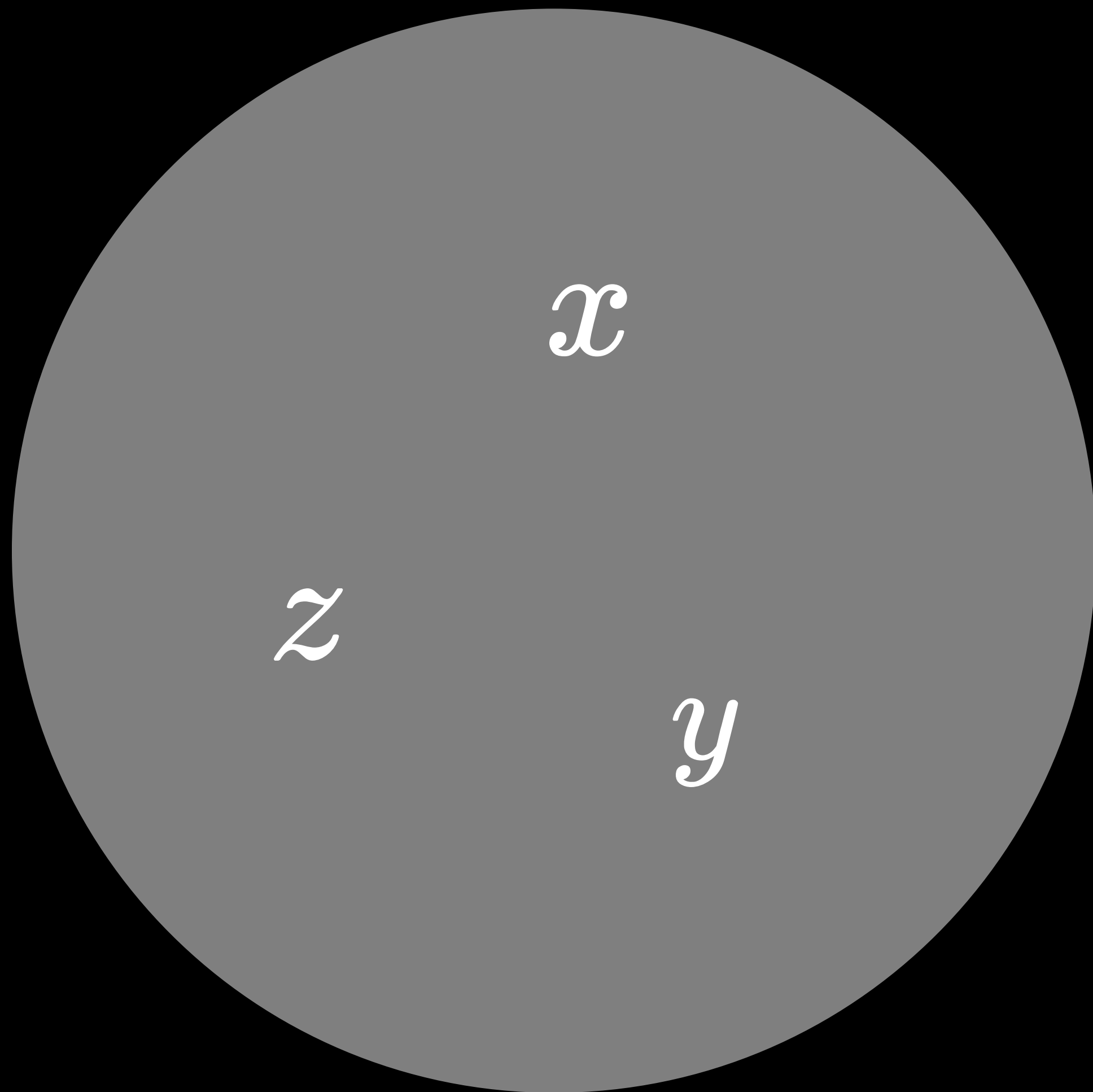


Df. 2.  $\varphi \text{ ess } x \Leftrightarrow \varphi(x) \wedge \forall \psi (\psi(x) \Rightarrow \Box \forall y (\varphi(y) \Rightarrow \psi(y)))$



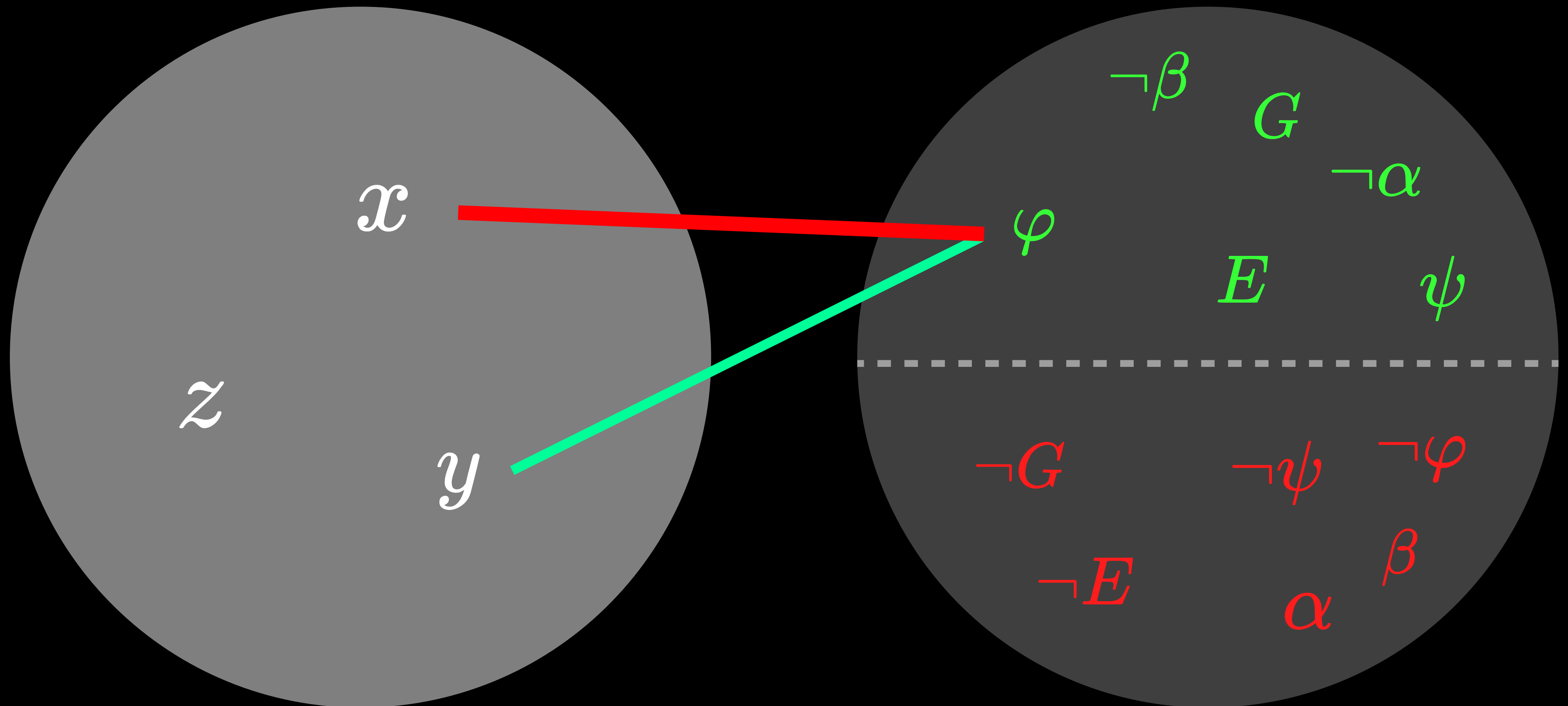
Ax. 4.  $P(\varphi) \Rightarrow \Box P(\varphi)$

Th. 3.  $G(x) \Rightarrow G \text{ ess } x$



Df. 3.  $E(x) \Leftrightarrow \forall \varphi (\varphi \text{ ess } x \Rightarrow \Box \exists y \varphi(y))$

Ax. 5.  $P(E)$



Th. 4.  $\Box \exists x G(x)$