

The background of the image is a photograph of the Aurora Borealis (Northern Lights) in a dark, star-filled sky. The aurora is visible as green and yellowish bands of light arching over a dark silhouette of mountain peaks. The overall atmosphere is mysterious and celestial.

# AURORA

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Lambda Calculus IDE



INPUT



STEPS

RESULT

## Muss:

- Code-Editor für Eingaben
- Auswertung starten
- Auswertung abbrechen
- Zwischenschritte anzeigen
- Auswertungsstrategie ist Normalreihenfolge

Steps

Standard library

\$plus #plus x y - sum two variables

\$minus #minus x y - substract second variable (y) from the first (x)

\$pair #minus x y - substract second variable (y) from the first (x)

\$prev #minus x y - substract second variable (y) from the first (x)

\$next #minus x y - substract second variable (y) from the first (x)

\$true #minus x y - substract second variable (y) from the first (x)

\$false #plus x y - sum two variables

User library

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG

1 #(λ n. λ m. λ s. λ z. n s (m s z)) (λ s. λ z. s(s z)) (λ s. λ z. s(s z))  
2 \$plus 2 2

run reset step | 15

- Night mode
- Standardbibliothek
- Kommentare
- Berechnung

Steps

Standard library

\$plus #plus x y - sum two variables

\$minus #minus x y - subtract second variable (y) from the first (x)

\$pair #minus x y - subtract second variable (y) from the first (x)

\$prev #minus x y - subtract second variable (y) from the first (x)

\$next #minus x y - subtract second variable (y) from the first (x)

\$true #minus x y - subtract second variable (y) from the first (x)

\$false #plus x y - sum two variables

User library

call by  
**VALUE**

**NORMAL**  
ORDER

call by  
**NAME**

MANUAL  
SELECTION

Night Mode

ENG



1 #(λ n. λ m. λ s. λ z. n s (m s z)) (λ s. λ z. s(s z)) (λ s. λ z. s(s z))  
2 \$plus 2 2

(II) pause (■) reset (脚步图标) step | 15



- Run Button wurde gedrückt
- Pause/ Reset

Steps

Standard library

User library +

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG 

INPUT

1  $\#(\lambda n. \lambda m. \lambda s. \lambda z. n\ s\ (m\ s\ z))\ (\lambda s. \lambda z. s(s\ z))\ (\lambda s. \lambda z. s(s\ z))$   
2 \$plus 2 2

run reset step | 15

⋮

STEPS

RESULT

- Ergebnis
- Zwischenschritte  
anzeigbar

Steps

Standard library

User library

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG

INPUT

1  $\#(\lambda n. \lambda m. \lambda s. \lambda z. n\ s\ (m\ s\ z))\ (\lambda s. \lambda z. s(s\ z))\ (\lambda s. \lambda z. s(s\ z))$   
2 \$plus 2 2

run reset step 15

1  $(\lambda n. \lambda m. \lambda s. \lambda z. n\ s\ (m\ s\ z))\ (\lambda s. \lambda z. s(s\ z))\ (\lambda s. \lambda z. s(s\ z))$   
2 ✗  $(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s\ z))\ s\ (m\ s\ z))\ (\lambda s. \lambda z. s(s\ z))$   
3  $\lambda s. \lambda z. (\lambda s. \lambda z. s(s\ z))\ s\ ((\lambda s. \lambda z. s(s\ z))\ s\ z)$   
4  $\lambda s. \lambda z. (\lambda z. s(s\ z))\ ((\lambda s. \lambda z. s(s\ z))\ s\ z)$   
5  $\lambda s. \lambda z. (s\ (s\ ((\lambda s. \lambda z. s(s\ z))\ s\ z)))$   
6  $\lambda s. \lambda z. (s\ (s\ ((\lambda z. s(s\ z))\ z)))$   
7  $\lambda s. \lambda z. (s\ (s\ (s\ (s\ z))))$

↳ 4

- RESULT
- Syntax Highlighting
  - Highlighting im Steps-Feld

1	$(\lambda n. \lambda m. \lambda s. \lambda z. n \ s \ (m \ s \ z)) \ (\lambda s. \lambda z. s(s \ z)) \ (\lambda s. \lambda z. s(s \ z))$
2 ✘	$(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s \ z)) \ s \ (m \ s \ z)) \ (\lambda s. \lambda z. s(s \ z))$
3	$\lambda s. \lambda z. (\lambda s. \lambda z. s(s \ z)) \ s \ ((\lambda s. \lambda z. s(s \ z)) \ s \ z)$
4	$\lambda s. \lambda z. (\lambda z. s(s \ z)) \ ((\lambda s. \lambda z. s(s \ z)) \ s \ z)$
5	$\lambda s. \lambda z. (s (s ((\lambda s. \lambda z. s(s \ z)) \ s \ z)))$
6	$\lambda s. \lambda z. (s (s ((\lambda z. s(s \ z)) \ z)))$
7	$\lambda s. \lambda z. (s (s (s (s z))))$

- Highlighting im Steps-Feld

Steps

Standard library

User library

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG

INPUT

1  $\#(\lambda n. \lambda m. \lambda s. \lambda z. n s (m s z)) (\lambda s. \lambda z. s(s z)) (\lambda s. \lambda z. s(s z))$   
2 \$plus 2 2

run reset step 15

1  $(\lambda n. \lambda m. \lambda s. \lambda z. n s (m s z)) (\lambda s. \lambda z. s(s z)) (\lambda s. \lambda z. s(s z))$   
2 ✗  $(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s (m s z)) (\lambda s. \lambda z. s(s z))$   
3  $\lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s ((\lambda s. \lambda z. s(s z)) s z)$   
4  $\lambda s. \lambda z. (\lambda z. s(s z)) ((\lambda s. \lambda z. s(s z)) s z)$   
5  $\lambda s. \lambda z. (s (s ((\lambda s. \lambda z. s(s z)) s z)))$   
6  $\lambda s. \lambda z. (s (s ((\lambda z. s(s z)) z)))$   
7  $\lambda s. \lambda z. (s (s (s (s z))))$

↳ 4

RESULT

- Auswertungsstrategie  
Manuelle Auswahl

Steps

1  100

10 15 30 50

Standard library

User library

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG

INPUT

1 #(λn.λm.λs.λz.n s (m s z)) (λs.λz.s(s z)) (λs.λz.s(s z))  
2 \$plus 2 2

run reset step | 5

1 (λn.λm.λs.λz.n s (m s z)) (λs.λz.s(s z)) (λs.λz.s(s z))  
2 ✗ (λm.λs.λz.(λs.λz.s(s z)) s (m s z)) (λs.λz.s(s z))  
3 λs.λz.(λs.λz.s(s z)) s ((λs.λz.s(s z)) s z)  
4 λs.λz.(λz.s(s z)) ((λs.λz.s(s z)) s z)  
5 λs.λz. ( s ( s ((λs.λz.s(s z)) s z) ))  
⋮

STEPS

RESULT

- Schrittanzahl einstellen

Steps

Standard library

User library +

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

Night Mode

ENG 

1  $\#(\lambda n. \lambda m. \lambda s. \lambda z. n\ s\ (m\ s\ z))\ (\lambda s. \lambda z. s(s\ z))\ (\lambda s. \lambda z. s(s\ z))$   
2 \$plus 2 2

INPUT

 run  reset  step | 15

 ADD NEW FUNCTION 

Name\*: \$rockstar

$\lambda$ - term\*: \$(\lambda n. \lambda m. \lambda s. \lambda z. n\ s\ (m\ s\ z))

Description:

↳ 4

RESULT

- Benutzerbibliothek

Steps 15

Standard library

User library +

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

LaTeX

Short link

eMail

Night Mode

ENG



1 #(λn.λm.λs.λz.n s (m s z)) (λs.λz.s(s z)) (λs.λz.s(s z))  
2 \$plus 2 2

INPUT

run reset step | 15

1  $(\lambda n. \lambda m. \lambda s. \lambda z. n s (m s z)) (\lambda s. \lambda z. s(s z)) (\lambda s. \lambda z. s(s z))$   
2 ✗  $(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s (m s z)) (\lambda s. \lambda z. s(s z))$   
3  $\lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s ((\lambda s. \lambda z. s(s z)) s z)$   
4  $\lambda s. \lambda z. (\lambda z. s(s z)) ((\lambda s. \lambda z. s(s z)) s z)$   
5  $\lambda s. \lambda z. (s (s ((\lambda s. \lambda z. s(s z)) s z)))$   
6  $\lambda s. \lambda z. (s (s ((\lambda z. s(s z)) z)))$   
7  $\lambda s. \lambda z. (s (s (s (s z))))$

TEPS

↳ 4

RESULT

- Share Button
- LaTeX-Export
- Short Link
- eMail

Steps

Standard library

User library

call by VALUE	NORMAL ORDER
call by NAME	MANUAL SELECTION

FRENCH

GERMAN

RUSSIAN

ENG 

INPUT

1 #(λn.λm.λs.λz.n s (m s z)) (λs.λz.s(s z)) (λs.λz.s(s z))  
2 \$plus 2 2

run reset step | 15

1  $(\lambda n. \lambda m. \lambda s. \lambda z. n s (m s z)) (\lambda s. \lambda z. s(s z)) (\lambda s. \lambda z. s(s z))$   
2 ✗  $(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s (m s z)) (\lambda s. \lambda z. s(s z))$   
3  $\lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s ((\lambda s. \lambda z. s(s z)) s z)$   
4  $\lambda s. \lambda z. (\lambda z. s(s z)) ((\lambda s. \lambda z. s(s z)) s z)$   
5  $\lambda s. \lambda z. (s (s ((\lambda s. \lambda z. s(s z)) s z)))$   
6  $\lambda s. \lambda z. (s (s ((\lambda z. s(s z)) z)))$   
7  $\lambda s. \lambda z. (s (s (s (s z))))$

↳ 4

RESULT

- Sprachenauswahl

Шаги 15

Стандартная библиотека

Личная библиотека +

вызов по  
ЗНАЧЕНИЮ

СТАНДАРТНЫЙ  
ПОРЯДОК

вызов по  
ИМЕНИ

собственный  
ВЫБОР

Ночной режим



RU/РУС



1 #(λ n. λ m. λ s. λ z. n s (m s z)) (λ s. λ z. s(s z)) (λ s. λ z. s(s z))  
2 \$plus 2 2

(▶) старт (■) сброс (脚步) шаг | 15

1  $(\lambda n. \lambda m. \lambda s. \lambda z. n s (m s z)) (\lambda s. \lambda z. s(s z)) (\lambda s. \lambda z. s(s z))$   
2 ✗  $(\lambda m. \lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s (m s z)) (\lambda s. \lambda z. s(s z))$   
3  $\lambda s. \lambda z. (\lambda s. \lambda z. s(s z)) s ((\lambda s. \lambda z. s(s z)) s z)$   
4  $\lambda s. \lambda z. (\lambda z. s(s z)) ((\lambda s. \lambda z. s(s z)) s z)$   
5  $\lambda s. \lambda z. (s (s ((\lambda s. \lambda z. s(s z)) s z)))$   
6  $\lambda s. \lambda z. (s (s ((\lambda z. s(s z)) z)))$   
7  $\lambda s. \lambda z. (s (s (s (s z))))$

↳ 4

РЕЗУЛЬТАТ

- Auf Russisch

The background of the slide features a photograph of the Aurora Borealis (Northern Lights) in a dark, star-filled sky. The green lights glow over a dark silhouette of mountain peaks. A large, semi-transparent triangular overlay is positioned in the lower right quadrant. The triangle has a dark red base on the left, a dark blue middle section, and a dark green top section. The word "AURORA" is written in white, stylized, blocky letters across the middle of the triangle. Below it, the words "Lambda Calculus IDE" are written in a smaller, white, sans-serif font.

# AURORA

Lambda Calculus IDE

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Iuliia Patrusheva Nikolai Polley Randy Seng