

Semântica e Gramática Gerativa

Aula 6

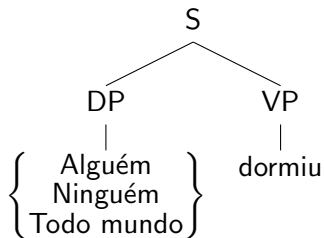
Marcelo Ferreira
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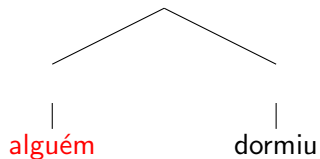
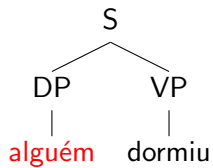
Sintagmas Quantificadores

- (1) Alguém dormiu.
- (2) Ninguém dormiu.
- (3) Todo mundo dormiu.
- (4) Algum aluno dormiu.
- (5) Nenhum aluno dormiu.
- (6) Todo aluno dormiu.
- (7) Mais de um aluno dormiu.
- (8) Quatro alunos dormiram.
- (9) Menos de cinco alunos dormiram.
- (10) A maioria dos alunos dormiram.

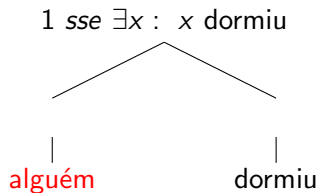
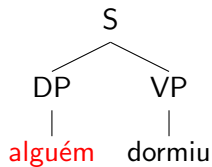
Sintagmas Quantificadores



Sintagmas Quantificadores

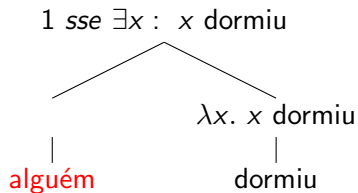
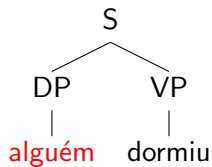


Sintagmas Quantificadores



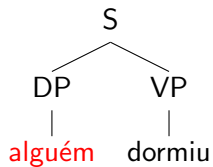
$\llbracket S \rrbracket = 1 \text{ sse } \exists x : x \text{ dormiu}$

Sintagmas Quantificadores

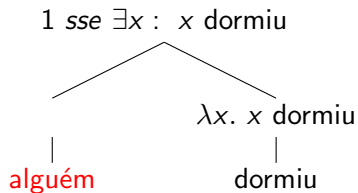


$\llbracket \text{dormiu} \rrbracket = \lambda x. x \text{ dormiu}$

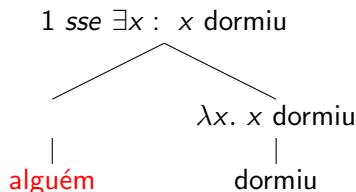
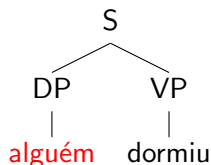
Sintagmas Quantificadores



$\llbracket \text{alguém} \rrbracket = ???$

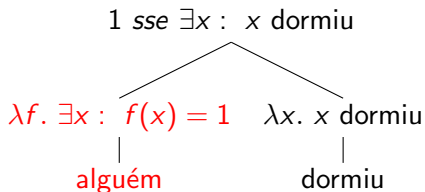
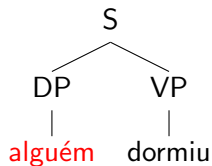


Sintagmas Quantificadores



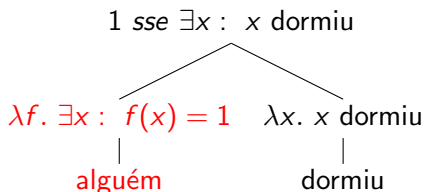
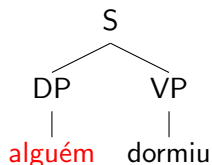
Intuição: *alguém* inspeciona a extensão de *dormir*, verificando se há algum indivíduo mapeado no valor 1. Se houver, a sentença é verdadeira. Se não houver, a sentença é falsa.

Sintagmas Quantificadores



$$\llbracket \text{alguém} \rrbracket = \lambda f. \exists x : f(x) = 1$$

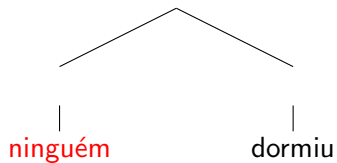
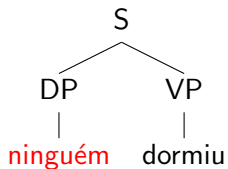
Sintagmas Quantificadores



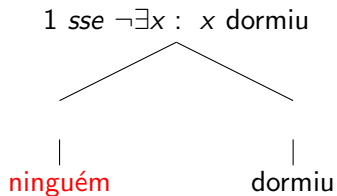
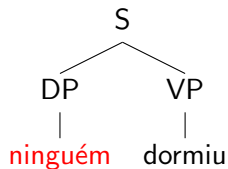
Note que neste caso é o sujeito que toma o VP como argumento.

$$[[S]] = [[\text{alguém}]]([[\text{dormiu}]])$$

Sintagmas Quantificadores

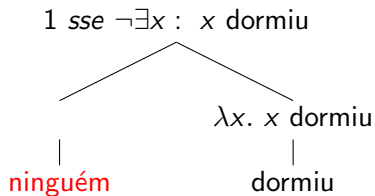
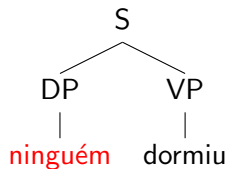


Sintagmas Quantificadores



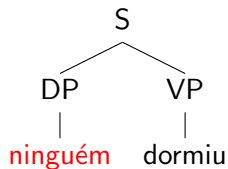
$\llbracket S \rrbracket = 1 \text{ sse } \neg \exists x : x \text{ dormiu}$

Sintagmas Quantificadores

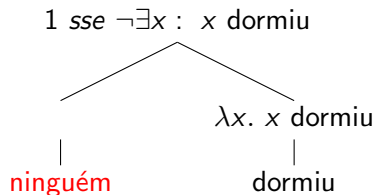


$\llbracket \text{dormiu} \rrbracket = \lambda x. x \text{ dormiu}$

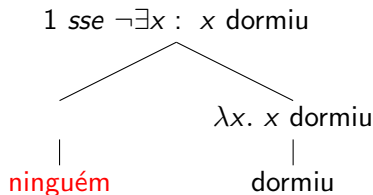
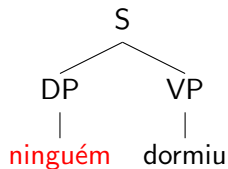
Sintagmas Quantificadores



[[ninguém]] = ???

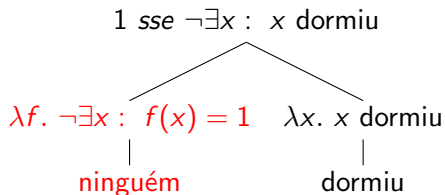
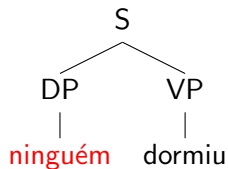


Sintagmas Quantificadores



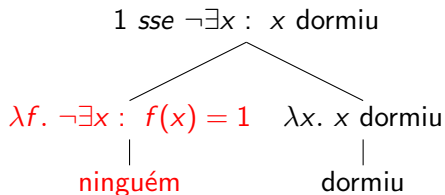
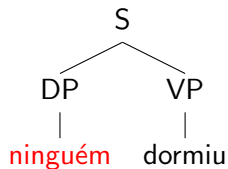
Intuição: *ninguém* inspeciona a extensão de *dormir*, verificando se há algum indivíduo mapeado no valor 1. Se não houver, a sentença é verdadeira. Se houver, a sentença é falsa.

Sintagmas Quantificadores



$$\llbracket \text{ninguém} \rrbracket = \lambda f. \neg \exists x : f(x) = 1$$

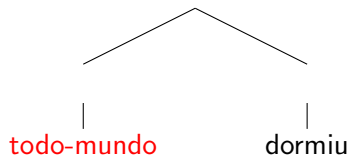
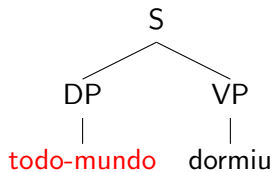
Sintagmas Quantificadores



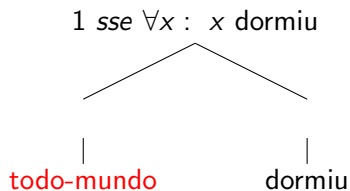
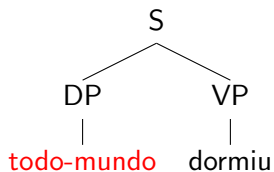
Aqui também é o sujeito que toma o VP como argumento.

$$[[S]] = [[ninguém]]([[dormiu]])$$

Sintagmas Quantificadores

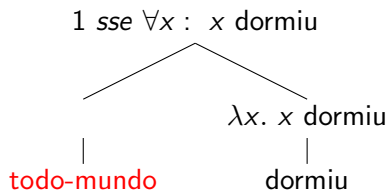
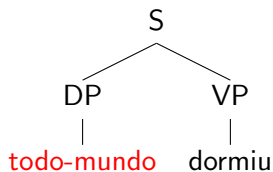


Sintagmas Quantificadores



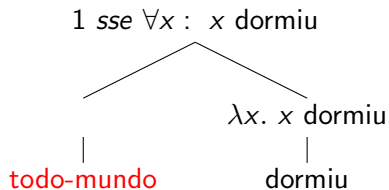
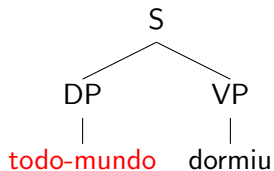
$\llbracket S \rrbracket = 1 \text{ sse } \forall x : x \text{ dormiu}$

Sintagmas Quantificadores



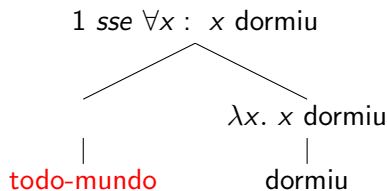
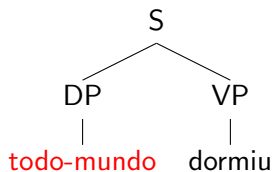
$\llbracket \text{dormiu} \rrbracket = \lambda x. x \text{ dormiu}$

Sintagmas Quantificadores



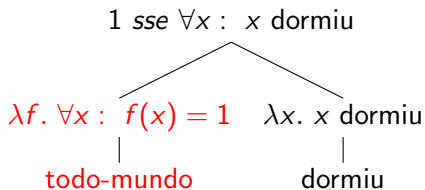
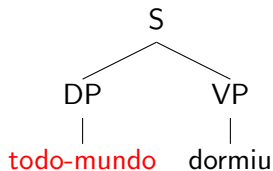
$\llbracket \text{todo mundo} \rrbracket = ???$

Sintagmas Quantificadores



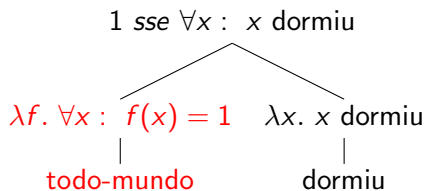
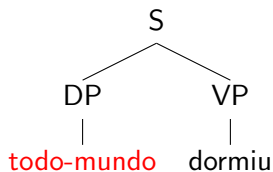
Intuição: *todo mundo* inspeciona a extensão de *dormir*, verificando se todos os indivíduos pertencentes ao seu domínio são mapeados no valor 1. Se este for o caso, a sentença é verdadeira. Caso contrário, a sentença é falsa.

Sintagmas Quantificadores



$\llbracket \text{todo mundo} \rrbracket = \lambda f. \forall x : f(x) = 1$

Sintagmas Quantificadores



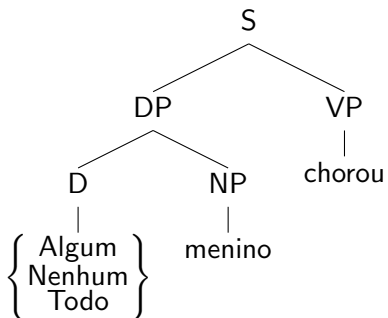
Aqui também é o sujeito que toma o VP como argumento.

$$[[S]] = [[\text{todo mundo}]]([[dormiu]])$$

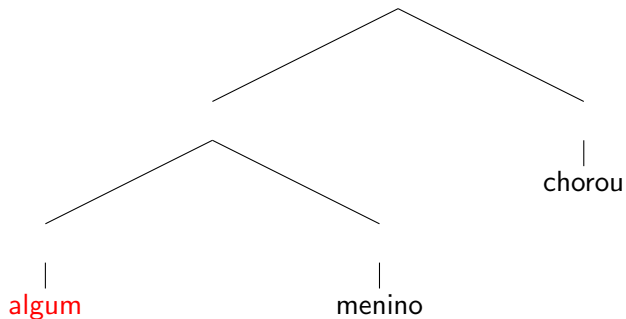
Determinantes Quantificadores

- (11) Algum menino chorou.
- (12) Nenhum menino chorou.
- (13) Todo menino chorou.

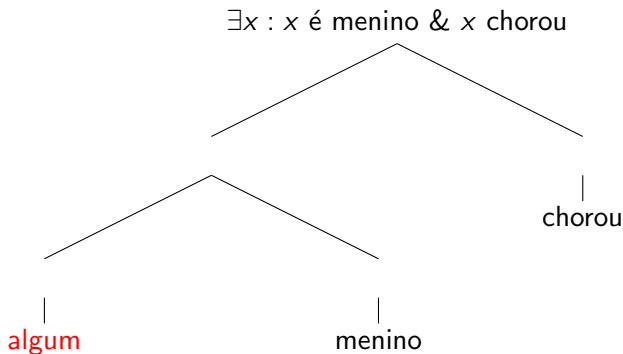
Determinantes Quantificadores



Determinantes Quantificadores

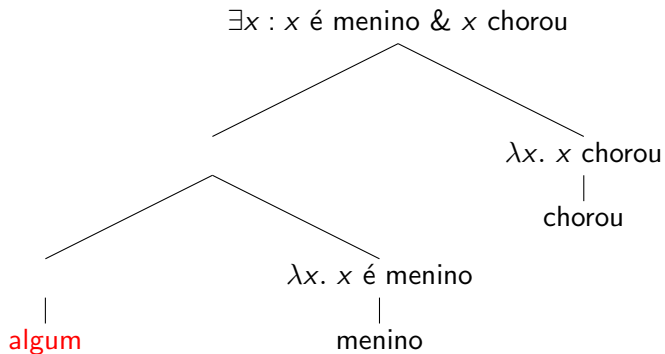


Determinantes Quantificadores



$\llbracket S \rrbracket = 1$ sse $\exists x : x \text{ é menino \& } x \text{ chorou}$

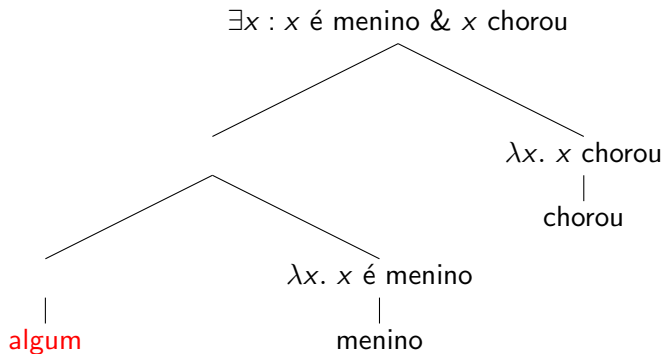
Determinantes Quantificadores



$\llbracket \text{menino} \rrbracket = \lambda x. x \text{ é menino}$

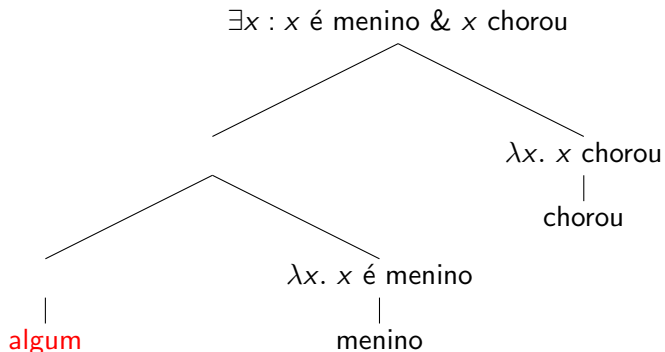
$\llbracket \text{chorou} \rrbracket = \lambda x. x \text{ chorou}$

Determinantes Quantificadores



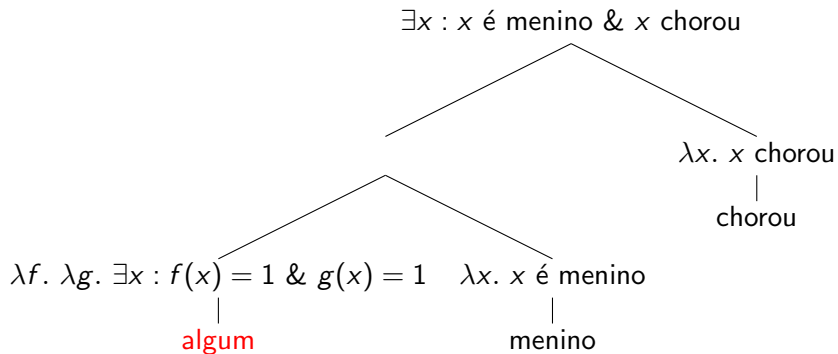
$\llbracket \text{algun} \rrbracket = ???$

Determinantes Quantificadores



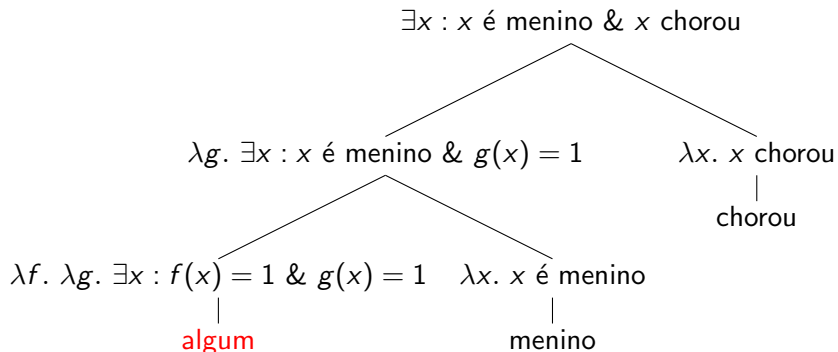
Intuição: $\llbracket \text{algun} \rrbracket$ inspeciona $\llbracket \text{menino} \rrbracket$ e $\llbracket \text{chorou} \rrbracket$ e verifica se algum indivíduo levado no valor 1 pela primeira é levado no valor 1 pela segunda.

Determinantes Quantificadores



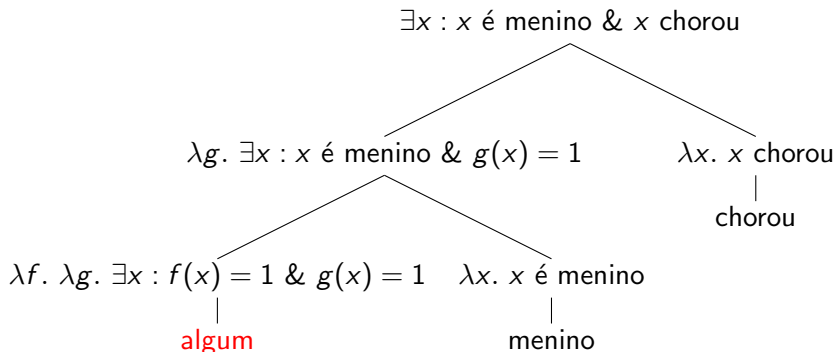
$$\llbracket \text{algum} \rrbracket = \lambda f. \lambda g. \exists x : f(x) = 1 \& g(x) = 1$$

Determinantes Quantificadores



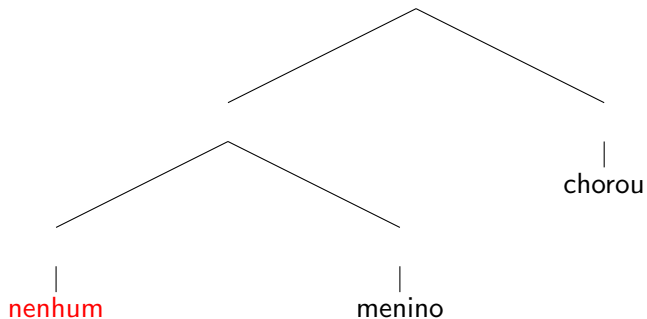
$$\llbracket \text{algum menino} \rrbracket = \llbracket \text{algum} \rrbracket (\llbracket \text{menino} \rrbracket)$$

Determinantes Quantificadores

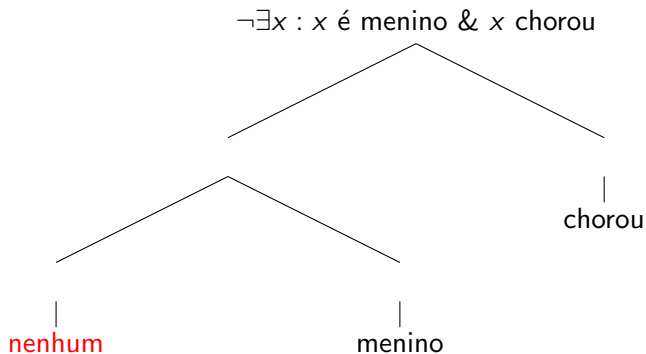


$$[[S]] = [[\text{algun menino}]][[\text{chorou}]]$$

Determinantes Quantificadores

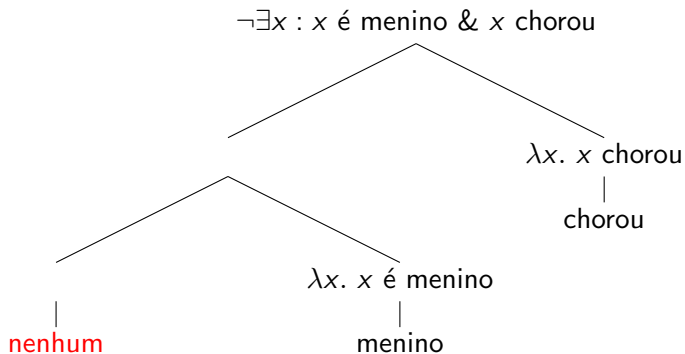


Determinantes Quantificadores



$\llbracket S \rrbracket = 1$ sse $\neg \exists x : x \text{ é menino \& } x \text{ chorou}$

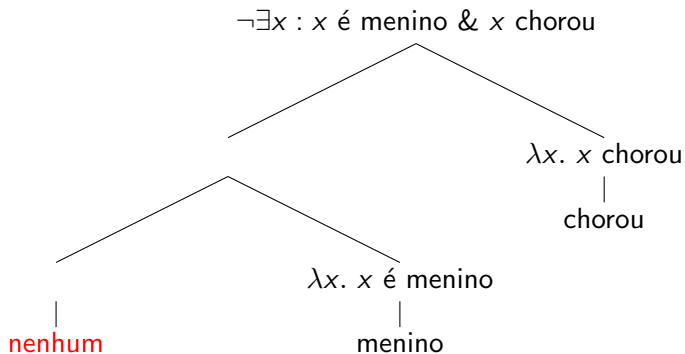
Determinantes Quantificadores



$\llbracket \text{menino} \rrbracket = \lambda x. x \text{ é menino}$

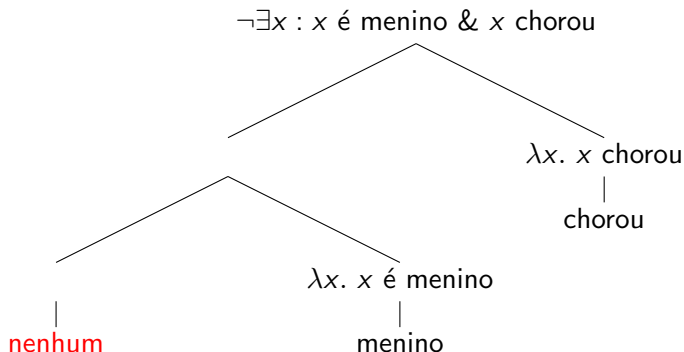
$\llbracket \text{chorou} \rrbracket = \lambda x. x \text{ chorou}$

Determinantes Quantificadores



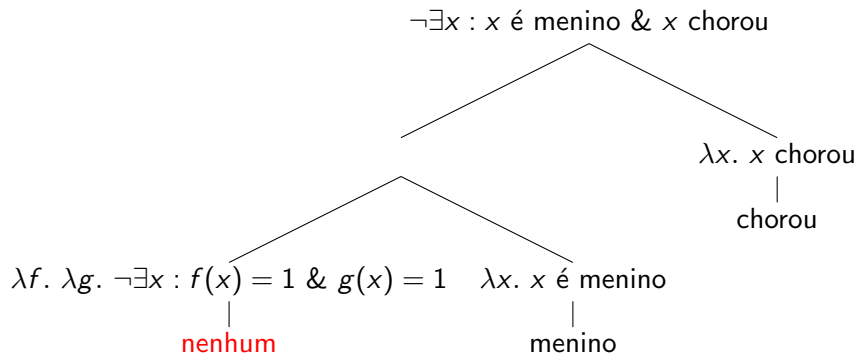
$\llbracket \text{nenhum} \rrbracket = ???$

Determinantes Quantificadores



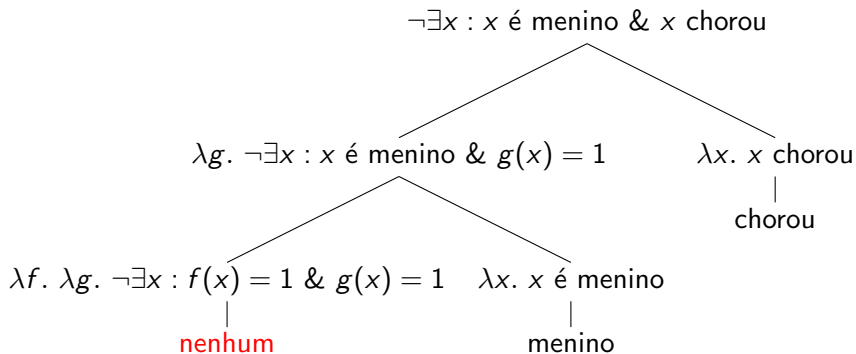
Intuição: $\llbracket \text{nenhum} \rrbracket$ inspeciona $\llbracket \text{menino} \rrbracket$ e $\llbracket \text{chorou} \rrbracket$ e verifica se nenhum indivíduo levado no valor 1 pela primeira é levado no valor 1 pela segunda.

Determinantes Quantificadores



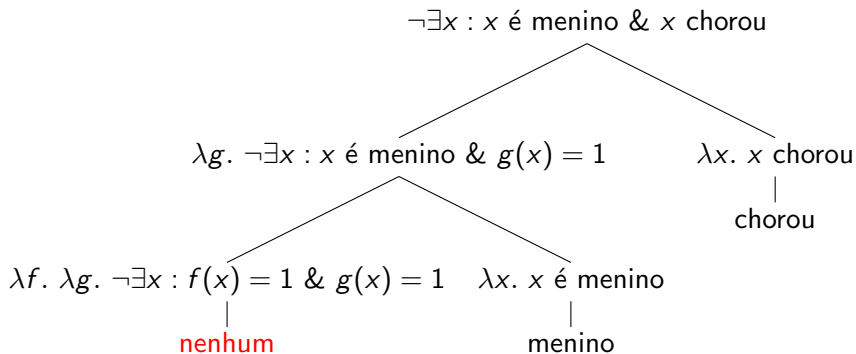
$$\llbracket \text{nenhum} \rrbracket = \lambda f. \lambda g. \neg \exists x : f(x) = 1 \ \& \ g(x) = 1$$

Determinantes Quantificadores



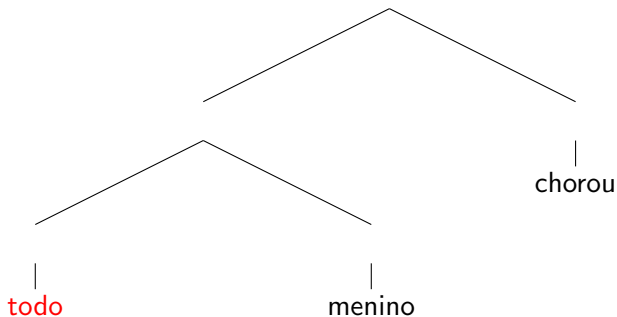
$\llbracket \text{nenhum menino} \rrbracket = \llbracket \text{nenhum} \rrbracket(\llbracket \text{menino} \rrbracket)$

Determinantes Quantificadores

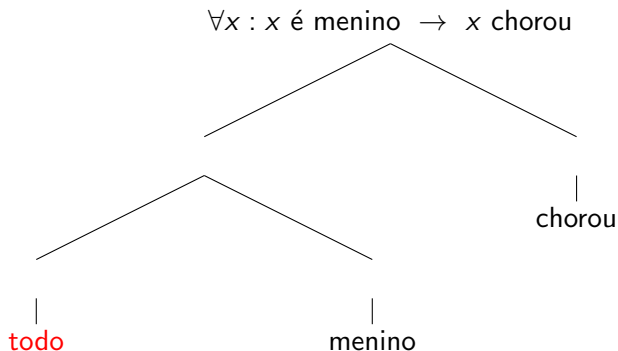


$$\llbracket S \rrbracket = \llbracket \text{nenhum menino} \rrbracket (\llbracket \text{chorou} \rrbracket)$$

Determinantes Quantificadores

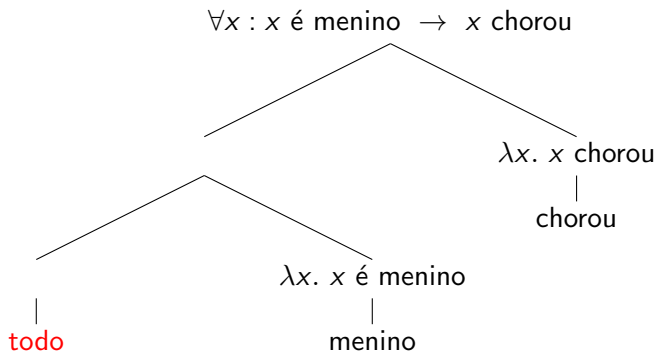


Determinantes Quantificadores



$\llbracket S \rrbracket = 1$ sse $\forall x : x \text{ é menino} \rightarrow x \text{ chorou}$

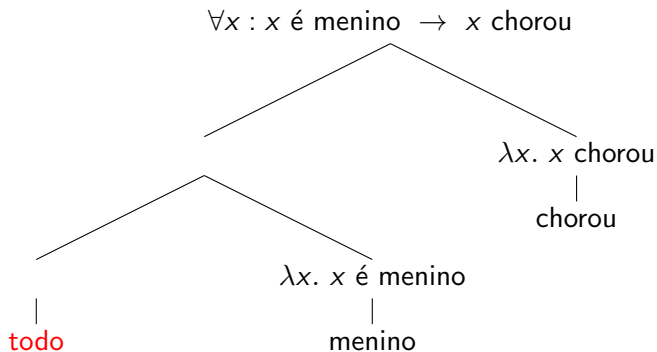
Determinantes Quantificadores



$\llbracket \text{menino} \rrbracket = \lambda x. x \text{ é menino}$

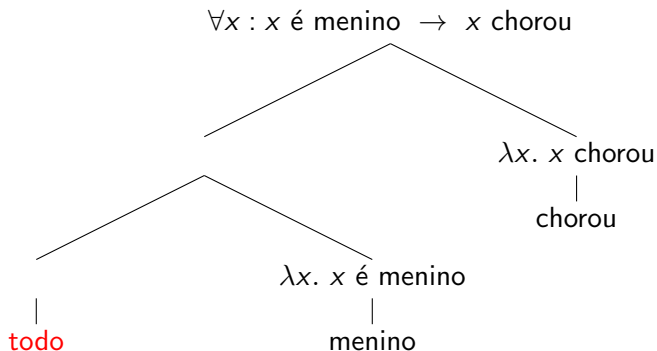
$\llbracket \text{chorou} \rrbracket = \lambda x. x \text{ chorou}$

Determinantes Quantificadores



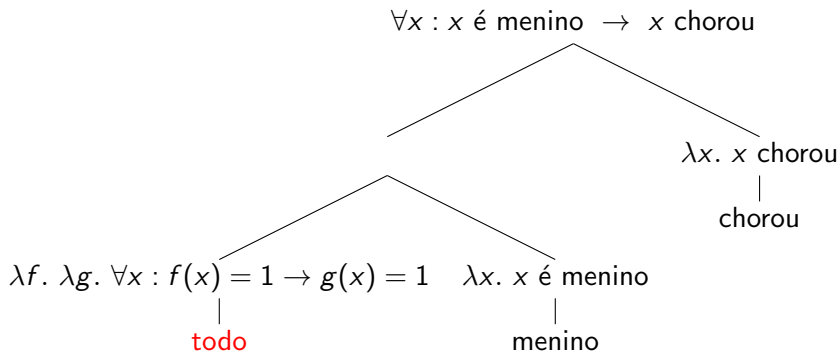
$\llbracket \text{todo} \rrbracket = ???$

Determinantes Quantificadores



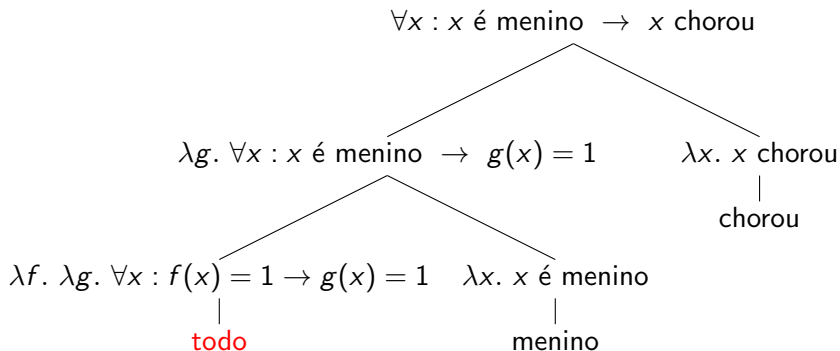
Intuição: *todo* inspeciona as extensões de *menino* e *chorou* e verifica se todos os indivíduos levados no valor 1 pela primeira são levados em 1 pela segunda.

Determinantes Quantificadores



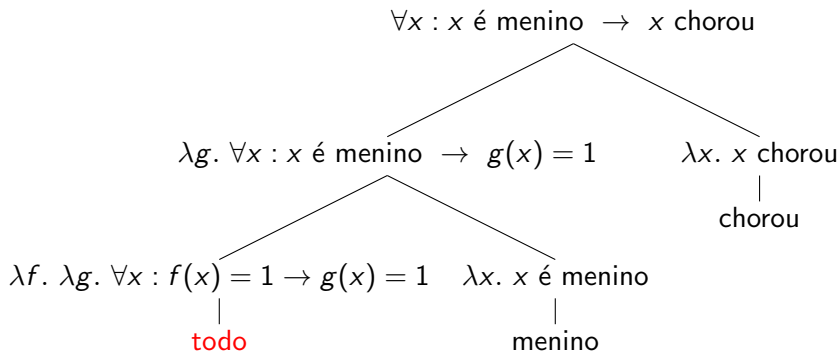
$$\llbracket \text{todo} \rrbracket = \lambda f. \lambda g. \forall x : f(x) = 1 \rightarrow g(x) = 1$$

Determinantes Quantificadores



$$\llbracket \text{todo menino} \rrbracket = \llbracket \text{todo} \rrbracket (\llbracket \text{menino} \rrbracket)$$

Determinantes Quantificadores



$$[[S]] = [[\text{todo menino}]]([[\text{chorou}]])$$

Outros Exemplos

Mais de um aluno dormiu
[[mais de um]] =

Outros Exemplos

Mais de um aluno dormiu

$$\llbracket \text{mais de um} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| > 1$$

Outros Exemplos

Mais de um aluno dormiu

$$\llbracket \text{mais de um} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| > 1$$

Quatro alunos dormiram.

$$\llbracket \text{quatro} \rrbracket =$$

Outros Exemplos

Mais de um aluno dormiu

$$\llbracket \text{mais de um} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| > 1$$

Quatro alunos dormiram.

$$\llbracket \text{quatro} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| = 4$$

Outros Exemplos

Mais de um aluno dormiu

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Menos de cinco alunos dormiram.

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Outros Exemplos

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Quatro alunos dormiram.

$$\llbracket \text{quatro} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| = 4$$

Menos de cinco alunos dormiram.

$$\llbracket \text{menos de cinco} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| < 5$$

A maioria dos alunos dormiram.

$$\llbracket \text{a maioria dos} \rrbracket =$$

Outros Exemplos

Mais de um aluno dormiu

$$\llbracket \text{mais de um} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| > 1$$

Quatro alunos dormiram.

$$\llbracket \text{quatro} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| = 4$$

Menos de cinco alunos dormiram.

$$\llbracket \text{menos de cinco} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| < 5$$

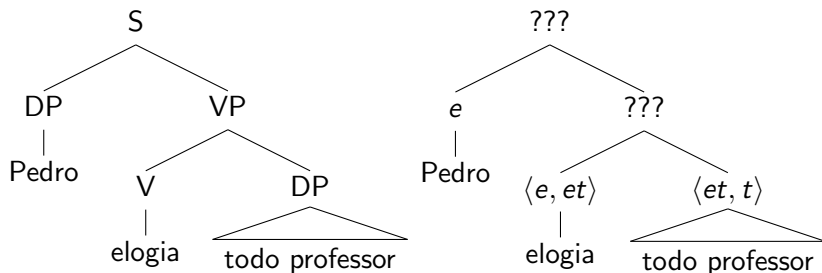
A maioria dos alunos dormiram.

$$\llbracket \text{a maioria dos} \rrbracket = \lambda f. \lambda g. |\{x : f(x) = 1 \ \& \ g(x) = 1\}| > |\{x : f(x) = 1 \ \& \ g(x) = 0\}|$$

Nota sobre tipos semânticos

- ▶ Determinantes quantificadores como *algum*, *nenhum*, *todo* denotam funções de tipo $\langle et, \langle et, t \rangle \rangle$
- ▶ DPs quantificadores como *algum aluno*, *todo aluno*, *ninguém* denotam funções de tipo $\langle et, t \rangle$, chamadas de **quantificadores generalizados**. Podem ser vistos como predicados de segunda ordem, pois tomam como argumentos predicados de primeira ordem (tipo $\langle e, t \rangle$).

DPs quantificadores em posição de objeto



- ▶ Incompatibilidade de tipos!!! Nosso sistema só interpreta DPs quantificadores em posição de sujeito!
- ▶ Voltaremos a isso na próxima aula.