Compositionality

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Overview

Frege's principle

The meaning of an expression is uniquely determined by the meanings of its parts and their mode of combination.

Motivation : Humbolt's view on finite means for infinite sentences

Consequences

- Locality principle : lexical items have a meaning that is independant of the expression they occur in.
- Substitution principle : synonymous expressions may be substituted for each other without changing the meaning of the complex expression in which they occur.
- Parts of well formed sentences have « meaning »
- Meanings can be « composed » : Frege's saturation idea

λ-terms can represent individual meanings and functional application can represent semantic composition.

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Type theory

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2. t is a type
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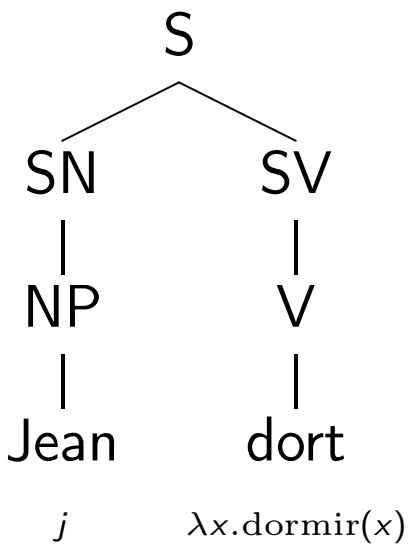
- $D_e = A$
- $D_t = \{0, 1\}$
- $D_{\langle a,b \rangle}$ = the set of mappings from D_a to D_b.

Meaningful expressions

For a, b types :

- variables and individual constants of type a belong to ME_a.
- if $\alpha \in ME_{\langle a,b\rangle}$ and $\beta \in ME_a$ then $(\alpha)\beta \in ME_b$.
- if u is a variable of type a and $\alpha \in ME_b$, then $\lambda u.\alpha \in ME_{\langle a,b\rangle}$.
- if φ and ψ are in ME_t, then the following expressions are also in ME_t : $\neg\varphi$, $(\varphi \wedge \psi)$, $(\varphi \vee \psi)$, $(\varphi \rightarrow \psi)$.
- if φ is in ME_t and u is a type a variable, then $\forall u\varphi$ and $\exists u\varphi$ are in ME_t.

Overview



S	$\rightarrow$	SN	SV
0	$\leftarrow$	(2)	1
SN	$\rightarrow$	NP	
0	$\leftarrow$	1	
SV	$\rightarrow$	V	
0	$\leftarrow$	1	
NP	$\rightarrow$	Jean	
0	$\leftarrow$	j	
V	$\rightarrow$	dort	
0	$\leftarrow$	$\lambda x.\text{dormir}(x)$	