Introduction to Glue Semantics

Class 3: Event semantics

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Exercise 1: Event semantics (1/3)

1. *Buffy did not die.*

$$\dfrac{\dfrac{\dfrac{\textbf{[Buffy]}\quad \textbf{buffy} : E(b) \qquad \textbf{[die]}\quad \lambda x.\lambda f.\exists e.\textbf{die}(e) \wedge \textbf{theme}(e,x) \wedge f(e) : E(b) \multimap [[V(d) \multimap T(d)] \multimap T(d)]}{\lambda f.\exists e.\textbf{die}(e) \wedge \textbf{theme}(e,\textbf{buffy}) \wedge f(e) : [V(d) \multimap T(d)] \multimap T(d)} \qquad \textbf{[root]}\quad \lambda e.\mathrm{T} : V(d) \multimap T(d)}{\exists e.\textbf{die}(e) \wedge \textbf{theme}(e,\textbf{buffy}) : T(d)} \qquad \textbf{[not]}\quad \lambda p.\neg p : T(d) \multimap T(d)}{\neg[\exists e.\textbf{die}(e) \wedge \textbf{theme}(e,\textbf{buffy})] : T(d)}$$

Exercise 1: Event semantics (2/3)

2. *Giles read every book thoroughly.*

[*Giles*]
$\textbf{giles} :$
$E(g)$

[*read*]
$\lambda x.\lambda f.\lambda y.\exists e.\textbf{read}(e) \wedge \textbf{agent}(e, x) \wedge \textbf{theme}(e, y) \wedge f(e) :$
$E(g) \multimap [[V(r) \multimap T(r)] \multimap [E(b) \multimap T(r)]]$

$\lambda f.\lambda y.\exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, y) \wedge f(e) :$
$[V(r) \multimap T(r)] \multimap [E(b) \multimap T(r)]$

$\left[\begin{array}{l} f : \\ V(r) \multimap T(r) \end{array}\right]^{1}$

$\lambda y.\exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, y) \wedge f(e) :$
$E(b) \multimap T(r)$

[*every book*]
$\lambda Q.\forall x.\textbf{book}(x) \rightarrow Q(x) :$
$[E(b) \multimap T(r)] \multimap T(r)$

$\forall x.\textbf{book}(x) \rightarrow \exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, x) \wedge f(e) :$
$T(r)$

$\lambda f.\forall x.\textbf{book}(x) \rightarrow \exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, x) \wedge f(e) :$
$[V(r) \multimap T(r)] \multimap T(r)$

[*thoroughly*]
$\lambda \mathcal{V}.\lambda g.\mathcal{V}(\lambda e.\textbf{thorough}(e) \wedge g(e)) :$
$[[V(r) \multimap T(r)] \multimap T(r)] \multimap [[V(r) \multimap T(r)] \multimap T(r)]$

$\lambda g.\forall x.\textbf{book}(x) \rightarrow \exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, x) \wedge \textbf{thorough}(e) \wedge g(e) :$
$[V(r) \multimap T(r)] \multimap T(r)$

[*root*]
$\lambda e.\mathrm{T} :$
$V(r) \multimap T(r)$

$\forall x.\textbf{book}(x) \rightarrow \exists e.\textbf{read}(e) \wedge \textbf{agent}(e, \textbf{giles}) \wedge \textbf{theme}(e, x) \wedge \textbf{thorough}(e) :$
$[V(r) \multimap T(r)] \multimap T(r)$

Exercise 1: Event semantics (3/3)

3. *Andrew slept in a van yesterday.*