Introduction to Formal Semantics

Tutorial Lecture 10: Event Semantics

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Tutorial Overview

- **Introducing events**
  Exercise 1
- **Davidsonian and Neo-Davidsonian style**
  Exercise 2
- **Events and compositionality**
  Exercise 3

Reading:

- Coppock, E., and Champollion, L. (2021). Invitation to formal semantics. Manuscript, Boston University and New York University (Ch.11)

Discussion

Discussion

- Did you have any difficulties understanding **the main concepts**?
- Were the **exercises** difficult?
- Is there something you would like to review from **tutorial 9**?

Exercises

Exercise 1a - Introducing events

The first set of sentences describes **properties,** which belong to the same ***entity***.

(1a) Brutus was a famous Roman politician.
(2a) Brutus was a Roman politician.
(3a) Brutus was a famous politician.
(4a) Brutus was a politician.

The second set of sentences describes **events,** which might differ among them.

(1b) Brutus stabbed Caesar at noon on the forum. **[v_1]**
(2b) Brutus stabbed Caesar on the forum. **[v_2]**
(3b) Brutus stabbed Caesar at noon. **[v_3]**
(4b) Brutus stabbed Caesar. **[v_4]**

Exercise 1b - Introducing events

Perception and reports

(16a) John saw Mary leave.

$\exists e \exists e'.[\text{See}(\text{j}, e, e') \wedge \text{Leave}(j, m, e')]$

Correct: There is a seeing event of John, where he sees Mary leaving.
Odd: There is a seeing event of John, where he sees himself leaving Mary?

Is it really so odd?

Philosophizing: "John, however, says that he has lost his love for Mary, and *he leaves her*". If the meaning of "leave" is like the meaning of "break up" then John might be thinking of this event.

Exercise 2 - Davidsonian and NeoDavidsonian Style

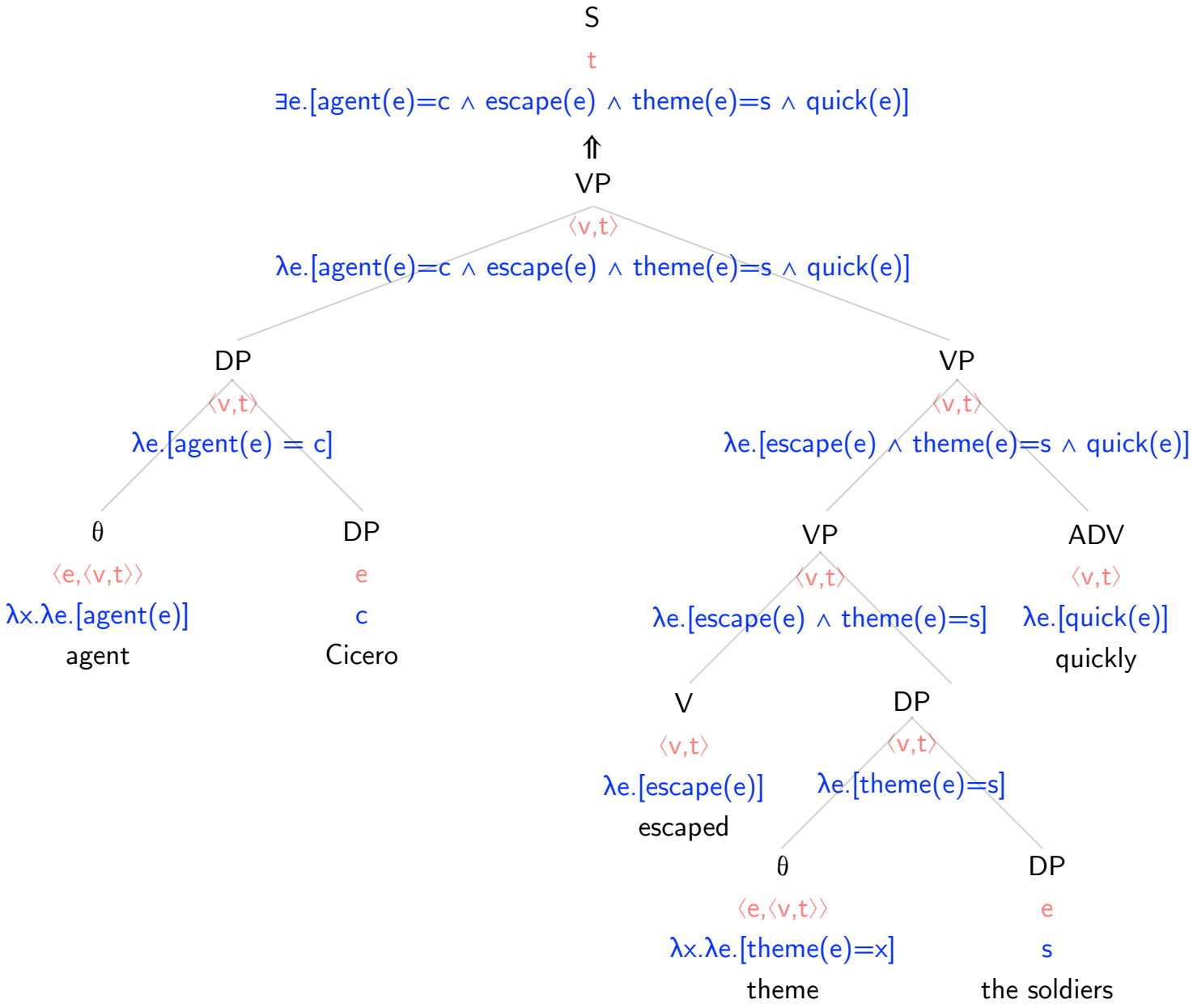
what = predicate, in = loc, with = instrument, when = time

a. $\exists e[\text{what}(e,h) \wedge \text{in}(e) = b]$
$\exists e[\text{tired}(e) \wedge \text{agent}(e) = h \wedge \text{loc}(e) = b]$

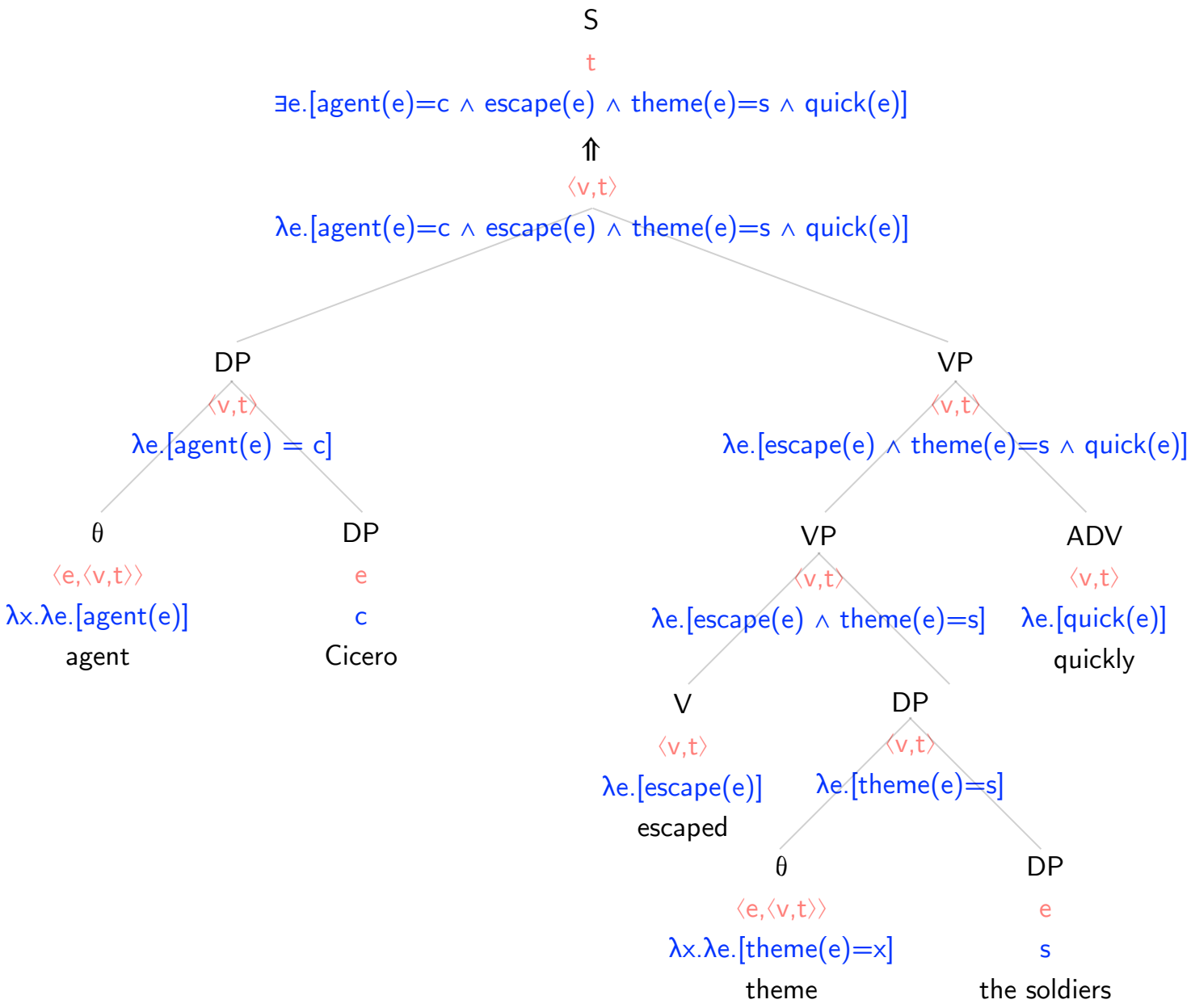
b. $\exists e[\text{what}(e, m, s) \wedge \text{in}(e) = z \wedge \text{with}(e) = c$
$\exists e[\text{bought}(e) \wedge \text{agent}(e) = m \wedge \text{theme}(e) = s \wedge \text{loc}(e) = z \wedge \text{inst}(e) = cc]$

c. $\exists e[\text{what}(e, y, p) \wedge \text{in}(e) = g \wedge \text{with}(e) = h \wedge \text{when}(e) = 12pm]$
$\exists e[\text{smashed}(e) \wedge \text{agent}(e) = y \wedge \text{theme}(p) \wedge \text{loc}(e) = g \wedge \text{inst}(e) = h \wedge$
$\text{time}(e) = 12pm]$

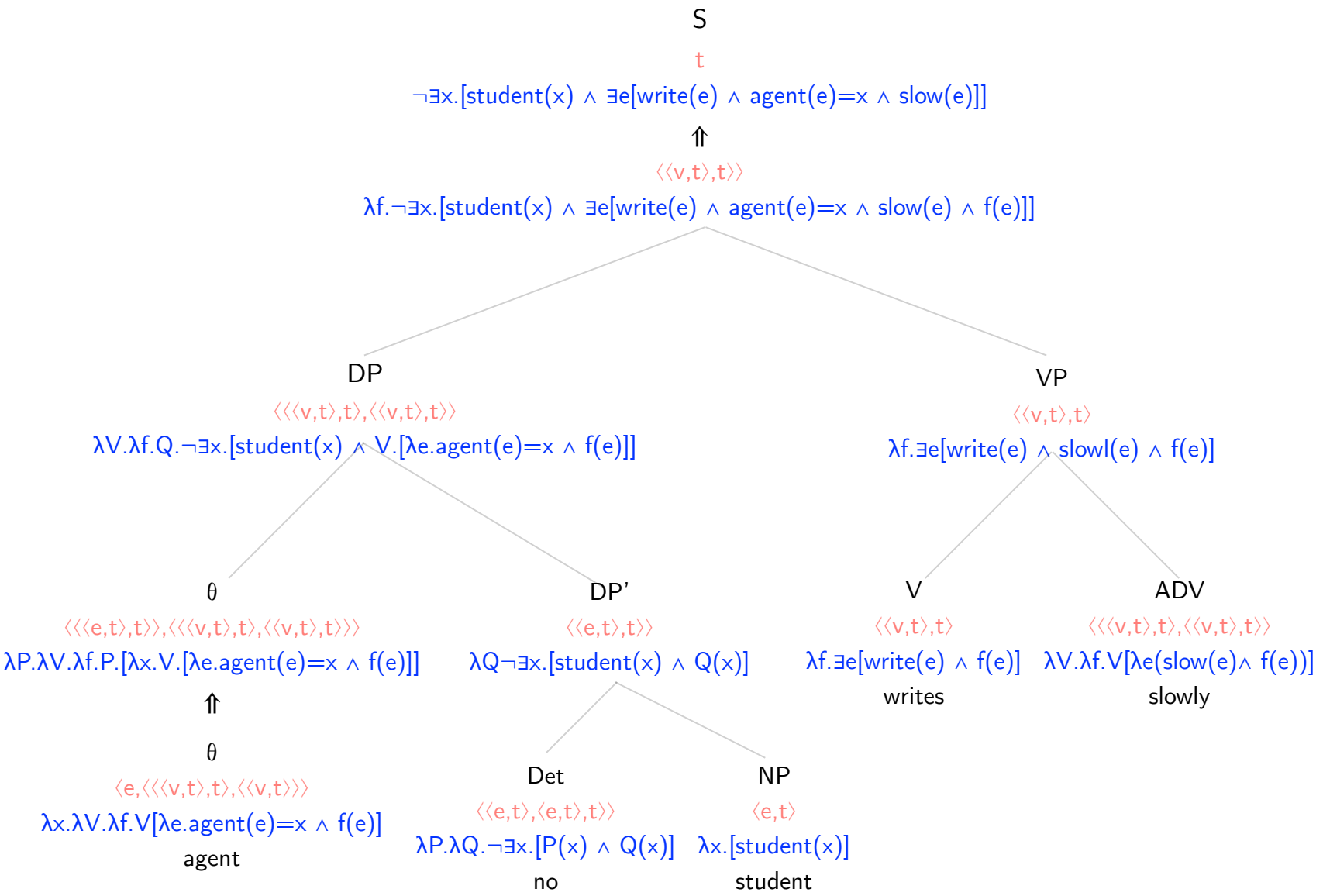
Exercise 3.a


S
t
∃e.[agent(e)=c ∧ escape(e) ∧ theme(e)=s ∧ quick(e)]
⇑
VP
⟨v,t⟩
λe.[agent(e)=c ∧ escape(e) ∧ theme(e)=s ∧ quick(e)]
DP
⟨v,t⟩
λe.[agent(e) = c]
θ
⟨e,⟨v,t⟩⟩
λx.λe.[agent(e)]
agent
DP
e
c
Cicero
VP
⟨v,t⟩
λe.[escape(e) ∧ theme(e)=s ∧ quick(e)]
VP
⟨v,t⟩
λe.[escape(e) ∧ theme(e)=s]
ADV
⟨v,t⟩
λe.[quick(e)]
quickly
V
⟨v,t⟩
λe.[escape(e)]
escaped
DP
⟨v,t⟩
λe.[theme(e)=s]
θ
⟨e,⟨v,t⟩⟩
λx.λe.[theme(e)=x]
theme
DP
e
s
the soldiers

Exercise 3.b


S
t
∃e.[agent(e)=c ∧ escape(e) ∧ theme(e)=s ∧ quick(e)]
⇑
⟨v,t⟩
λe.[agent(e)=c ∧ escape(e) ∧ theme(e)=s ∧ quick(e)]
DP
⟨v,t⟩
λe.[agent(e) = c]
θ
⟨e,⟨v,t⟩⟩
λx.λe.[agent(e)]
agent
DP
e
c
Cicero
VP
⟨v,t⟩
λe.[escape(e) ∧ theme(e)=s ∧ quick(e)]
VP
⟨v,t⟩
λe.[escape(e) ∧ theme(e)=s]
ADV
⟨v,t⟩
λe.[quick(e)]
quickly
V
⟨v,t⟩
λe.[escape(e)]
escaped
DP
⟨v,t⟩
λe.[theme(e)=s]
θ
⟨e,⟨v,t⟩⟩
λx.λe.[theme(e)=x]
theme
DP
e
s
the soldiers

Exercise 3.c


S
t
¬∃x.[student(x) ∧ ∃e[write(e) ∧ agent(e)=x ∧ slow(e)]]
⇑
⟨⟨v,t⟩,t⟩
λf.¬∃x.[student(x) ∧ ∃e[write(e) ∧ agent(e)=x ∧ slow(e) ∧ f(e)]]
DP
⟨⟨⟨v,t⟩,t⟩,⟨⟨v,t⟩,t⟩⟩
λV.λf.Q.¬∃x.[student(x) ∧ V.[λe.agent(e)=x ∧ f(e)]]
VP
⟨⟨v,t⟩,t⟩
λf.∃e[write(e) ∧ slowl(e) ∧ f(e)]
θ
⟨⟨⟨e,t⟩,t⟩,⟨⟨⟨v,t⟩,t⟩,⟨⟨v,t⟩,t⟩⟩⟩
λP.λV.λf.P.[λx.V.[λe.agent(e)=x ∧ f(e)]]
⇑
θ
⟨e,⟨⟨⟨v,t⟩,t⟩,⟨⟨v,t⟩⟩⟩
λx.λV.λf.V[λe.agent(e)=x ∧ f(e)]
agent
DP'
⟨⟨e,t⟩,t⟩
λQ¬∃x.[student(x) ∧ Q(x)]
V
⟨⟨v,t⟩,t⟩
λf.∃e[write(e) ∧ f(e)]
writes
ADV
⟨⟨⟨v,t⟩,t⟩,⟨⟨v,t⟩,t⟩⟩
λV.λf.V[λe(slow(e)∧ f(e))]
slowly
Det
⟨⟨e,t⟩,⟨e,t⟩,t⟩⟩
λP.λQ.¬∃x.[P(x) ∧ Q(x)]
no
NP
⟨e,t⟩
λx.[student(x)]
student

Conclusion

If you need further help or have additional questions, please contact us.

Best of Luck!

Conclusion