Aligning Formal Meaning Representations with Surface Strings For Wide-coverage Text Generation

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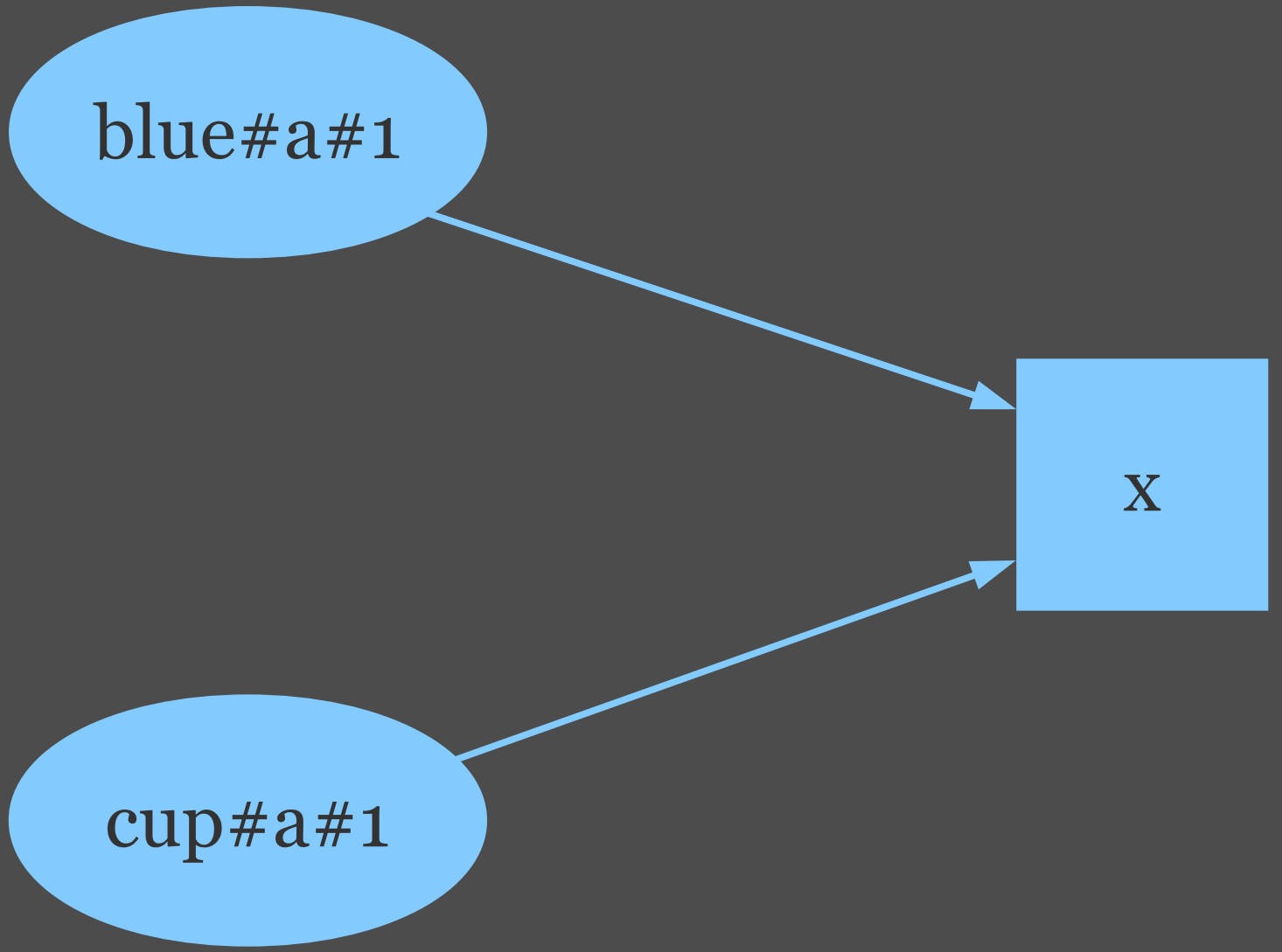
ACL 2013
Sofia


“a blue cup”

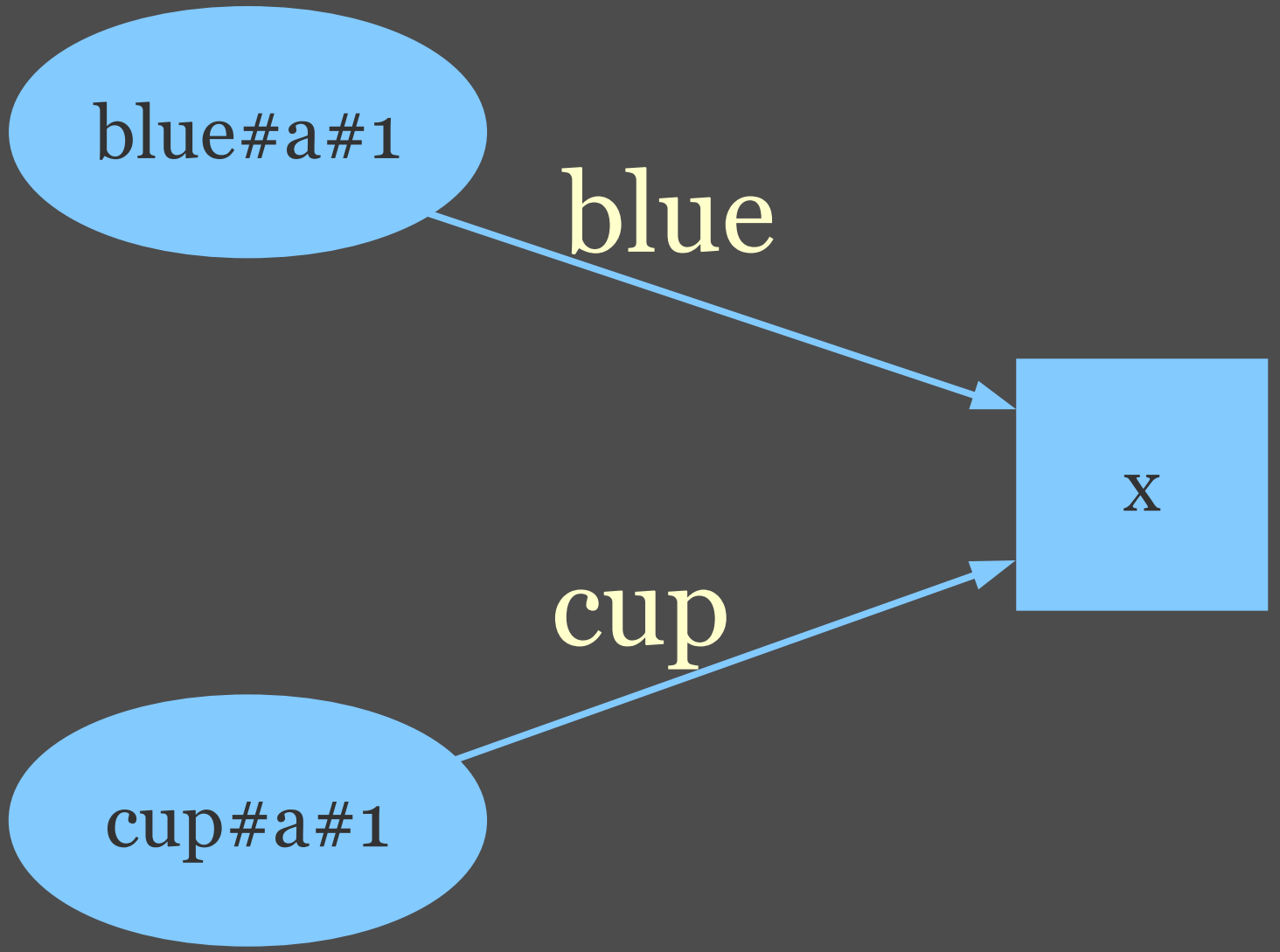
“a blue cup”

$$\exists x\ \text{blue\#a\#1}(x) \wedge \text{cup\#n\#1}(x)$$

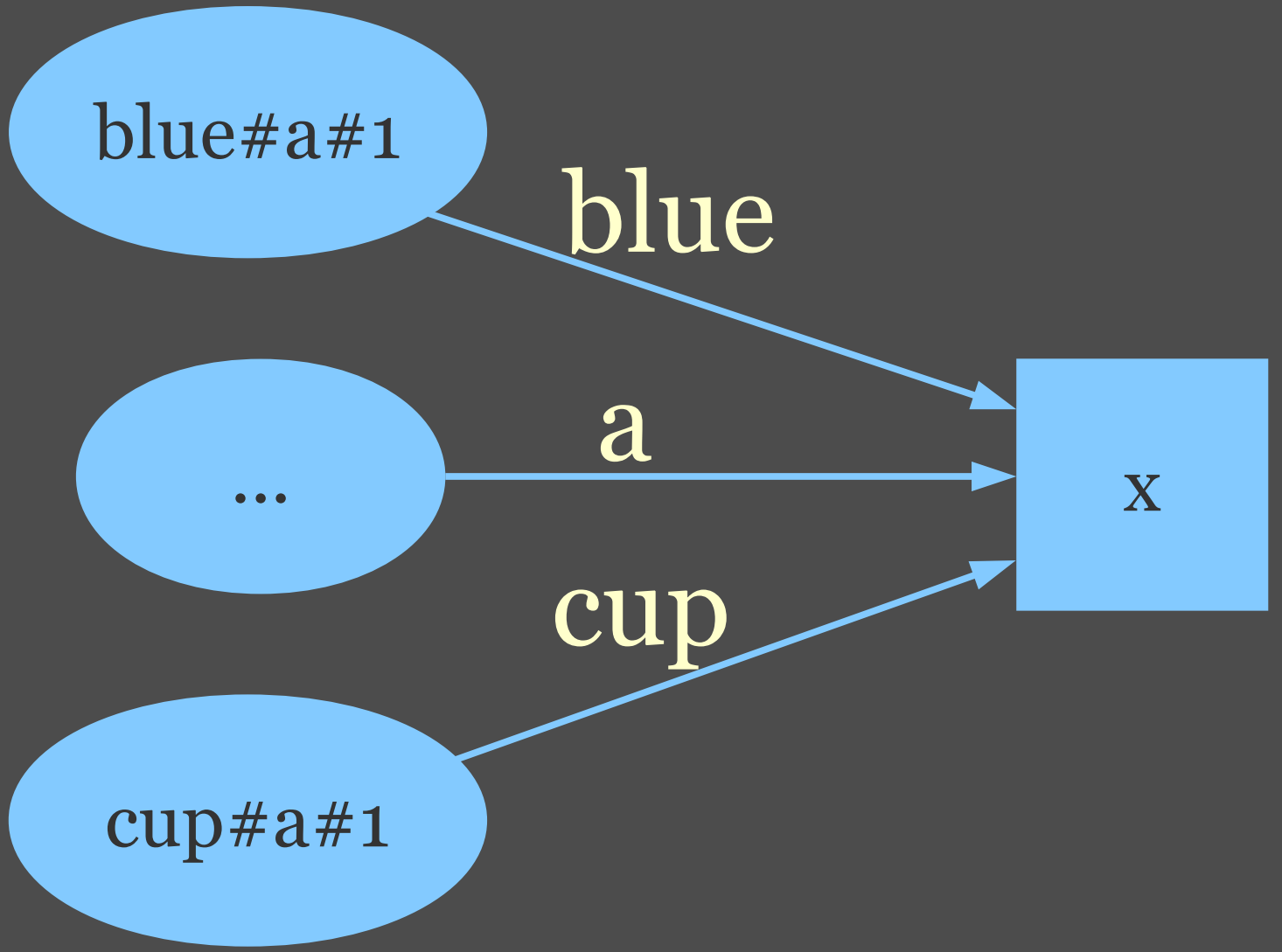
“a blue cup”



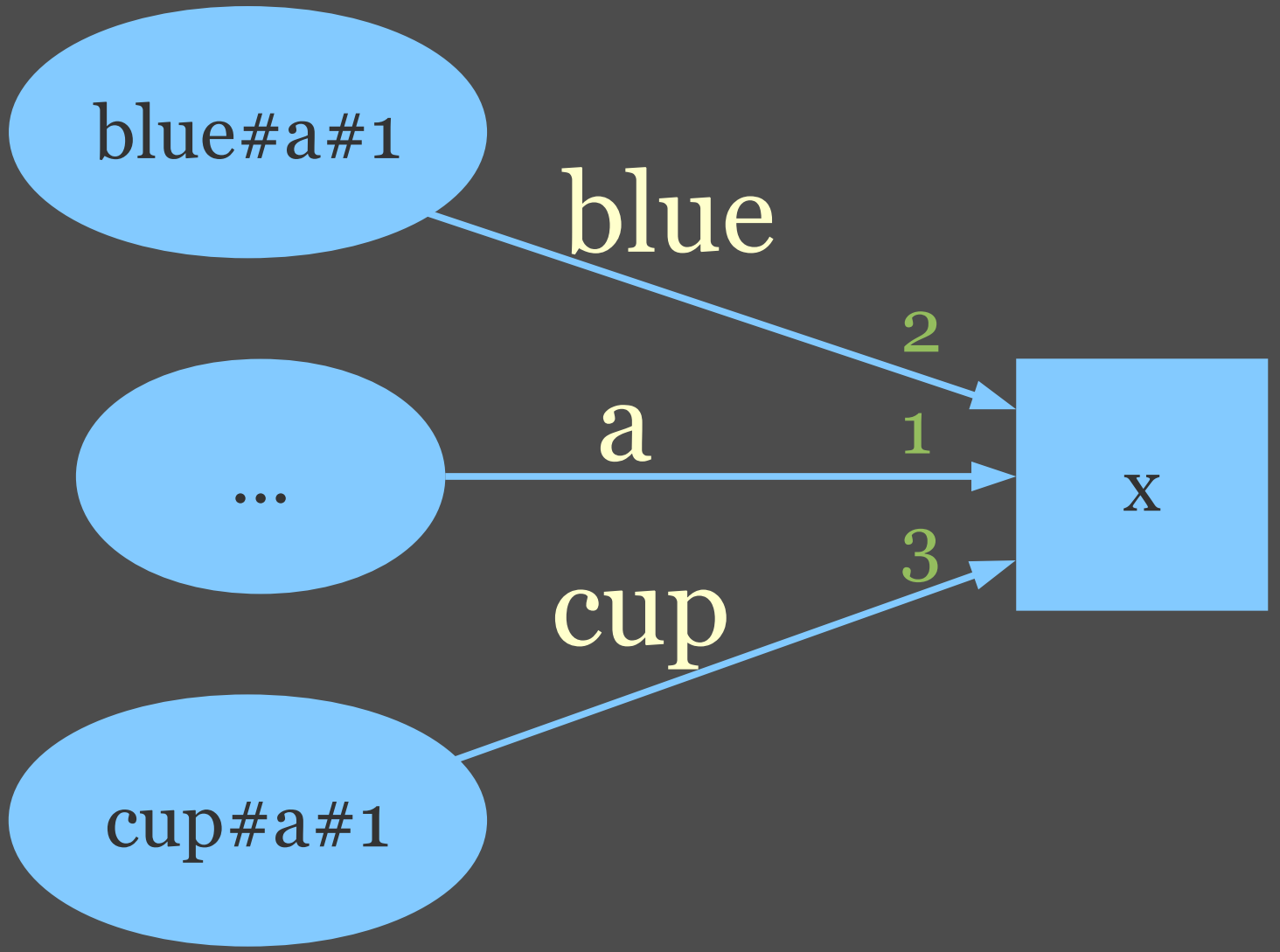
“a blue cup”



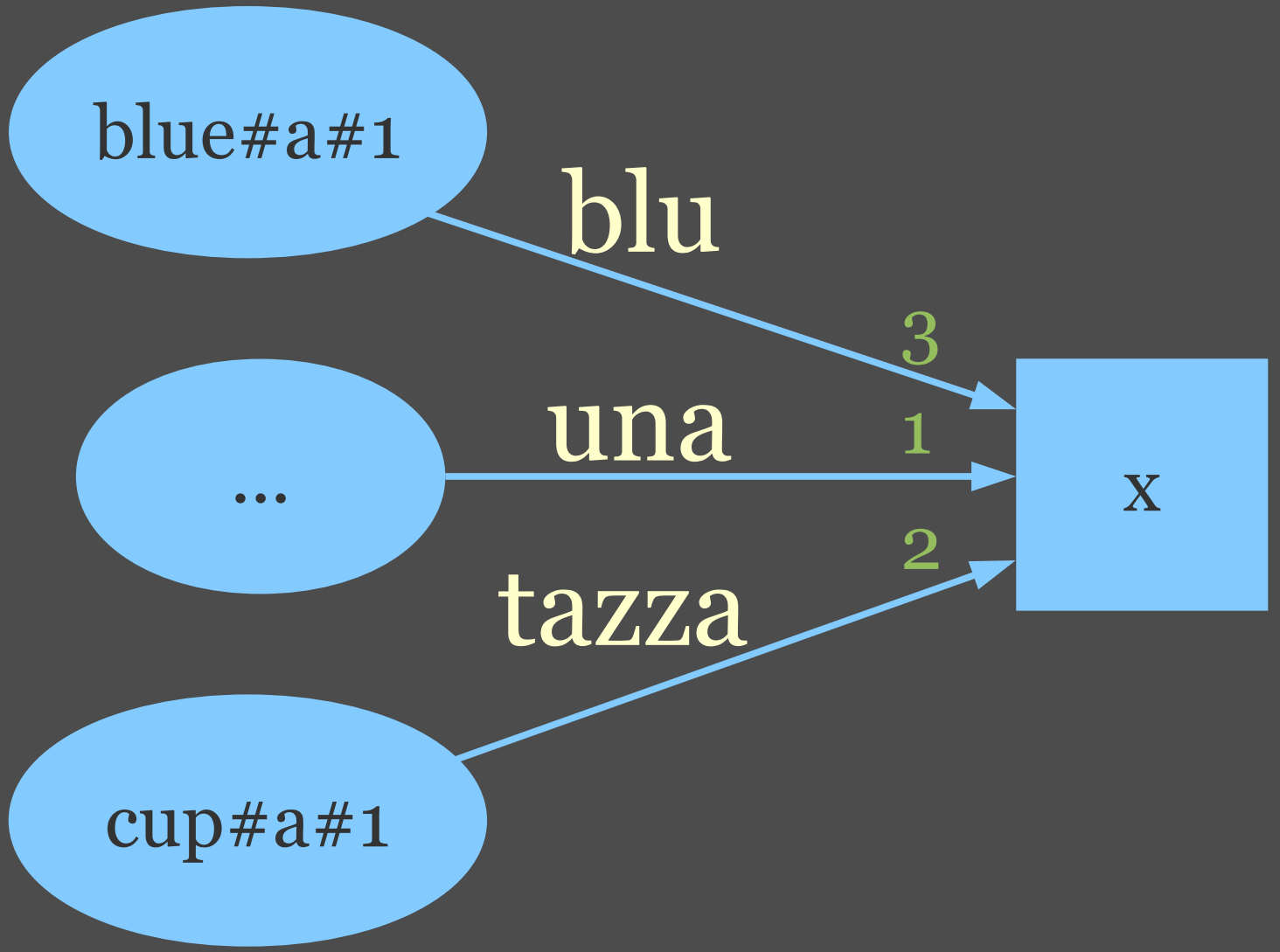
“a blue cup”



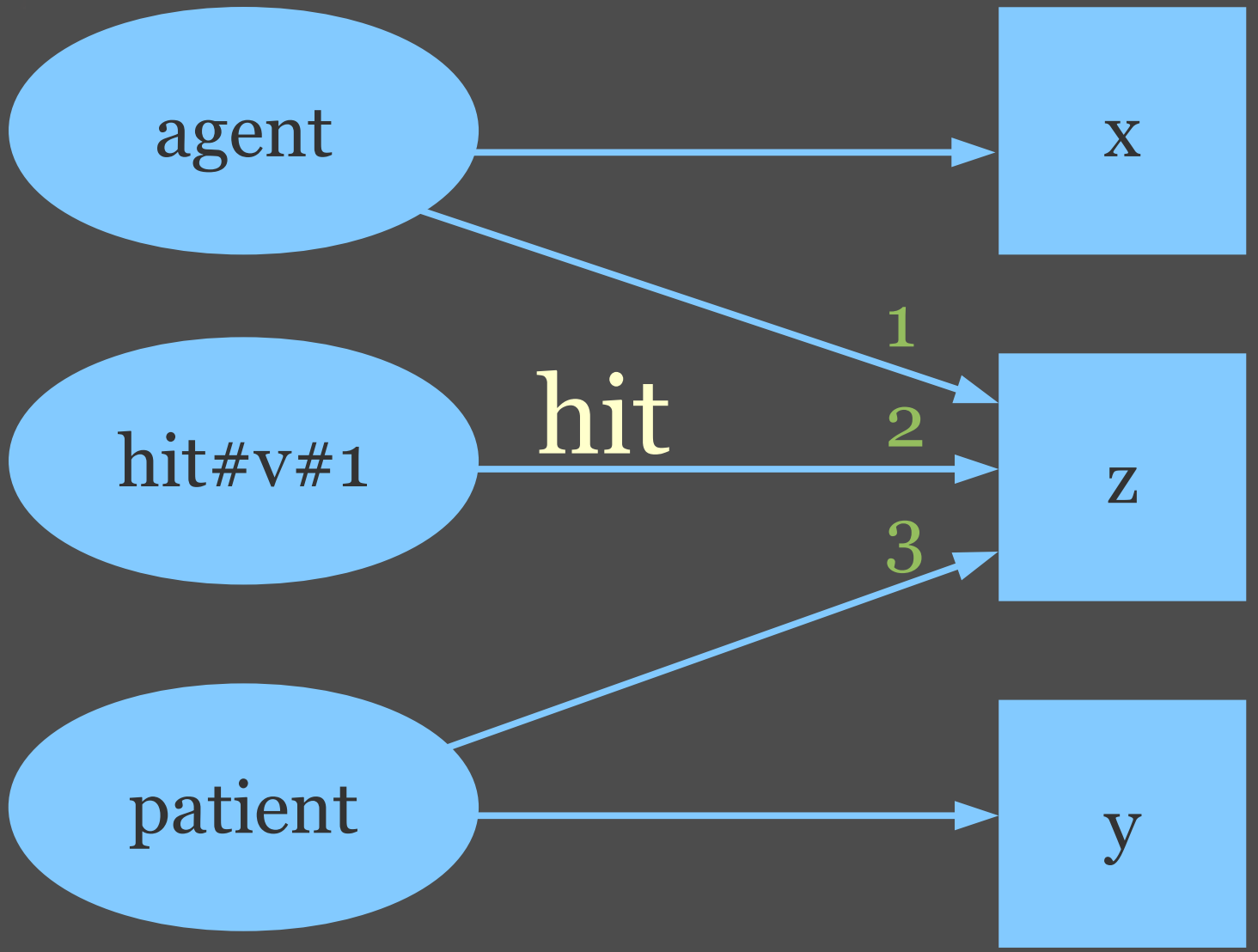
“a blue cup”



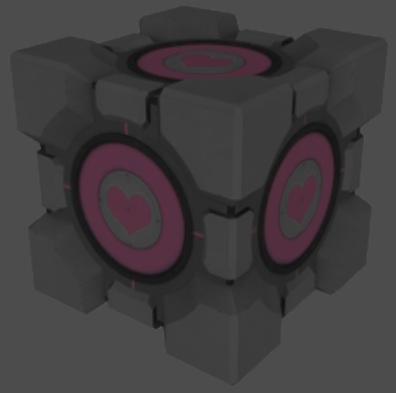
“una tazza blu”



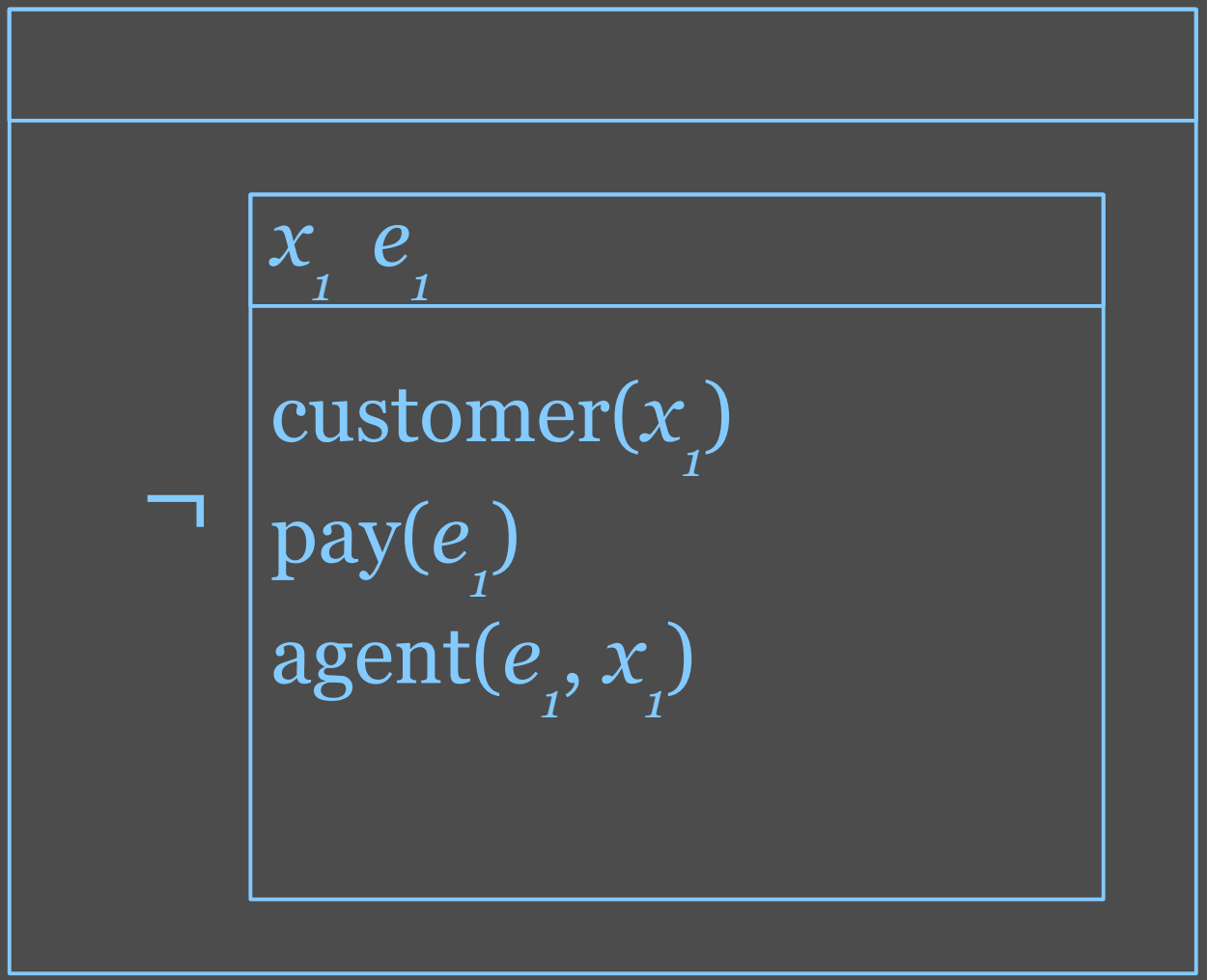
“x hit y”

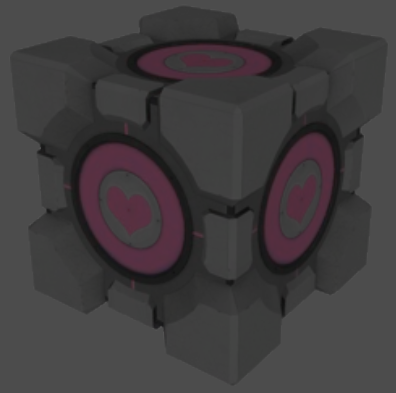


Discourse Representation Theory



“A customer did not pay.”





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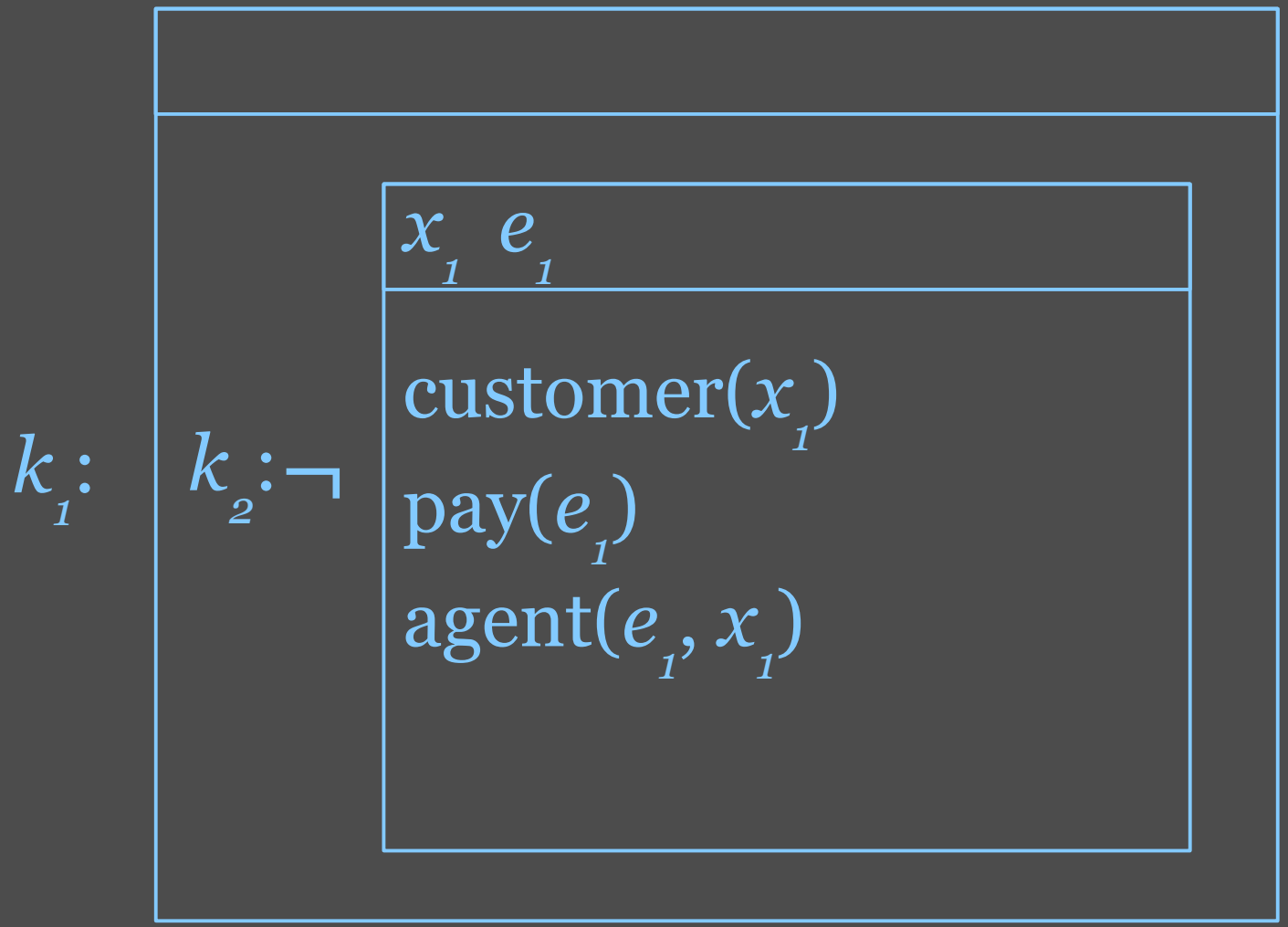
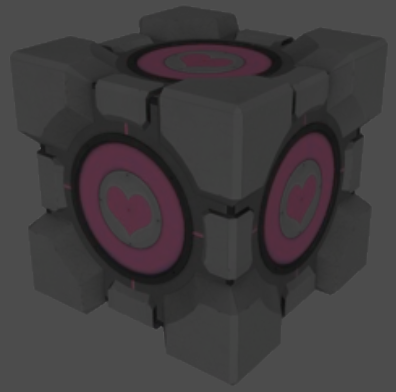
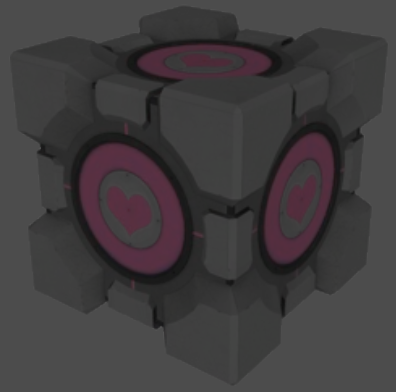




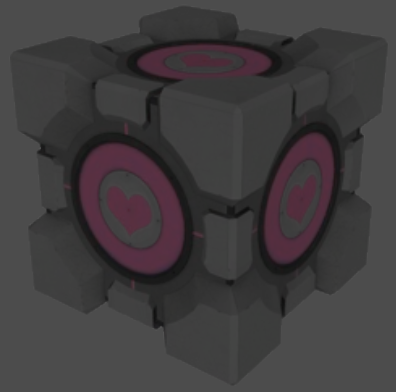
“A customer did not pay.”

k_1	unary	¬
¬	scope	k_2
k_2	referent	e_1
k_2	referent	x_1
k_2	event	pay
k_2	concept	customer
k_2	role	agent
customer	instance	x_1
pay	instance	e_1
agent	internal	e_1
agent	external	x_1



“A customer did not pay.”

k_1	unary	¬	
¬	scope	k_2	
k_2	referent	e_1	
k_2	referent	x_1	A
k_2	event	pay	
k_2	concept	customer	
k_2	role	agent	
customer	instance	x_1	customer
pay	instance	e_1	pay
agent	internal	e_1	
agent	external	x_1	



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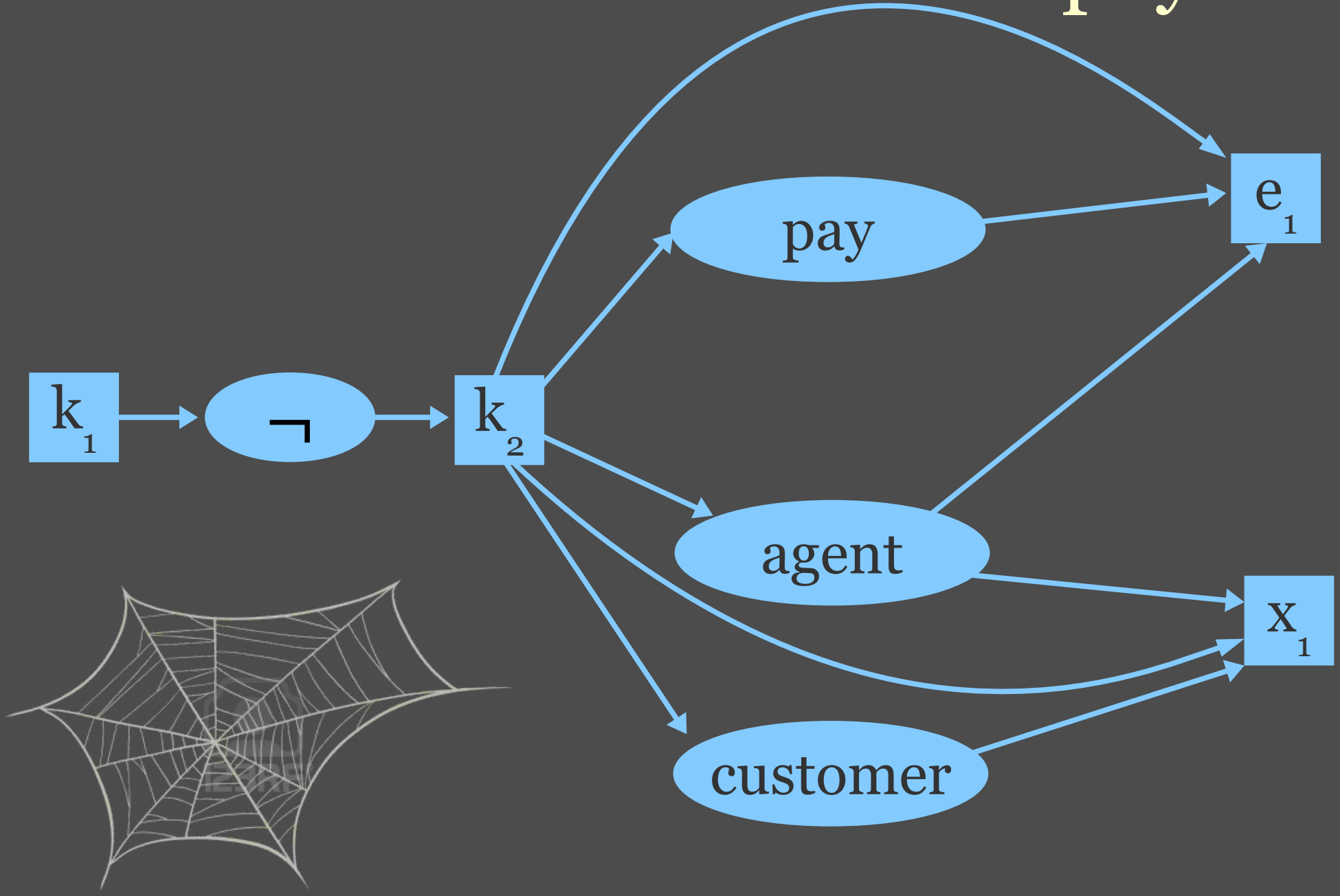
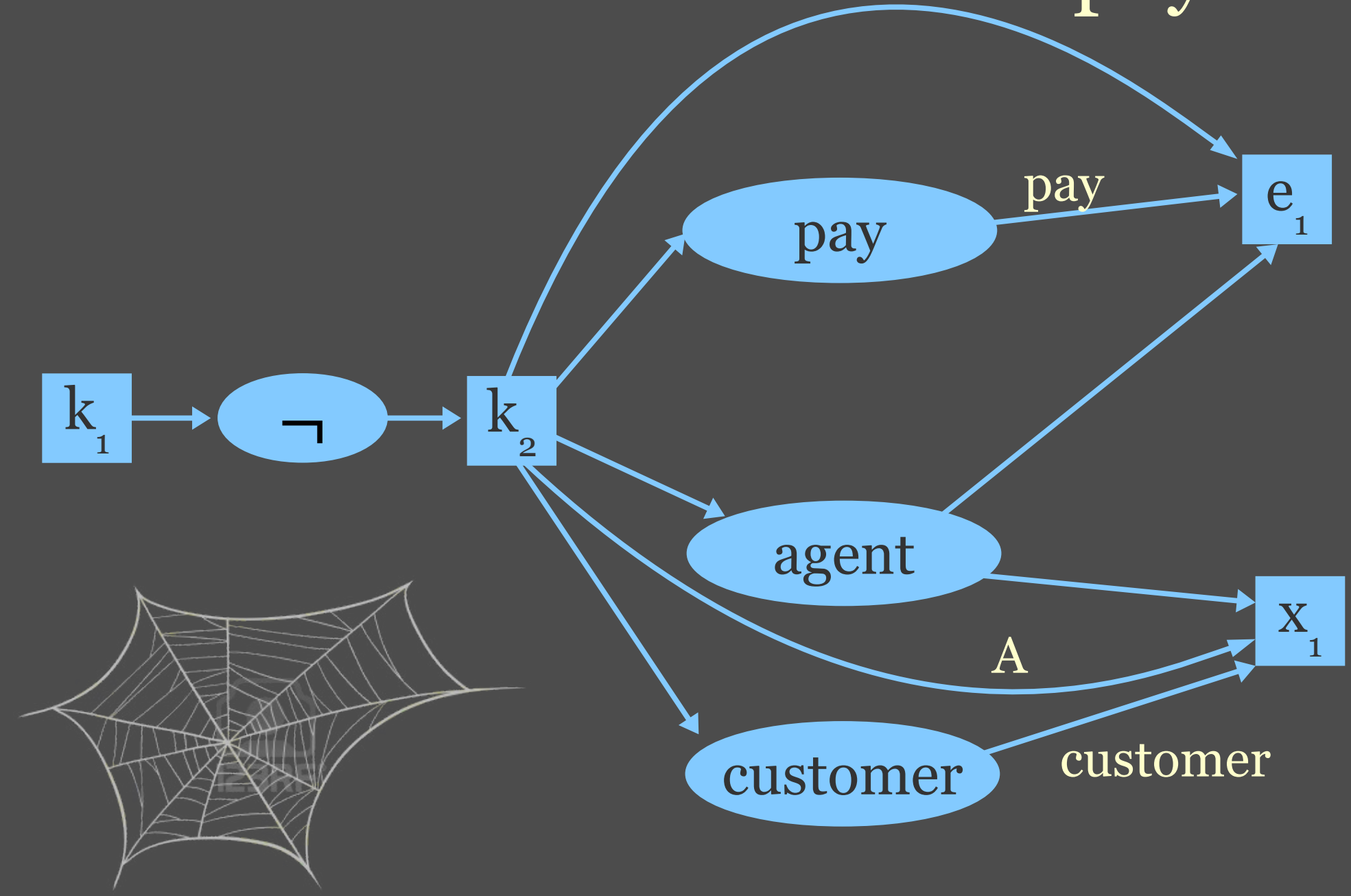
k_2	role	agent	
customer	instance	x_1	customer
pay	instance	e_1	pay
agent	internal	e_1	
agent	external	x_1	
k_2	surface	e_1	did
k_2	surface	e_1	not
k_2	surface	e_1	.

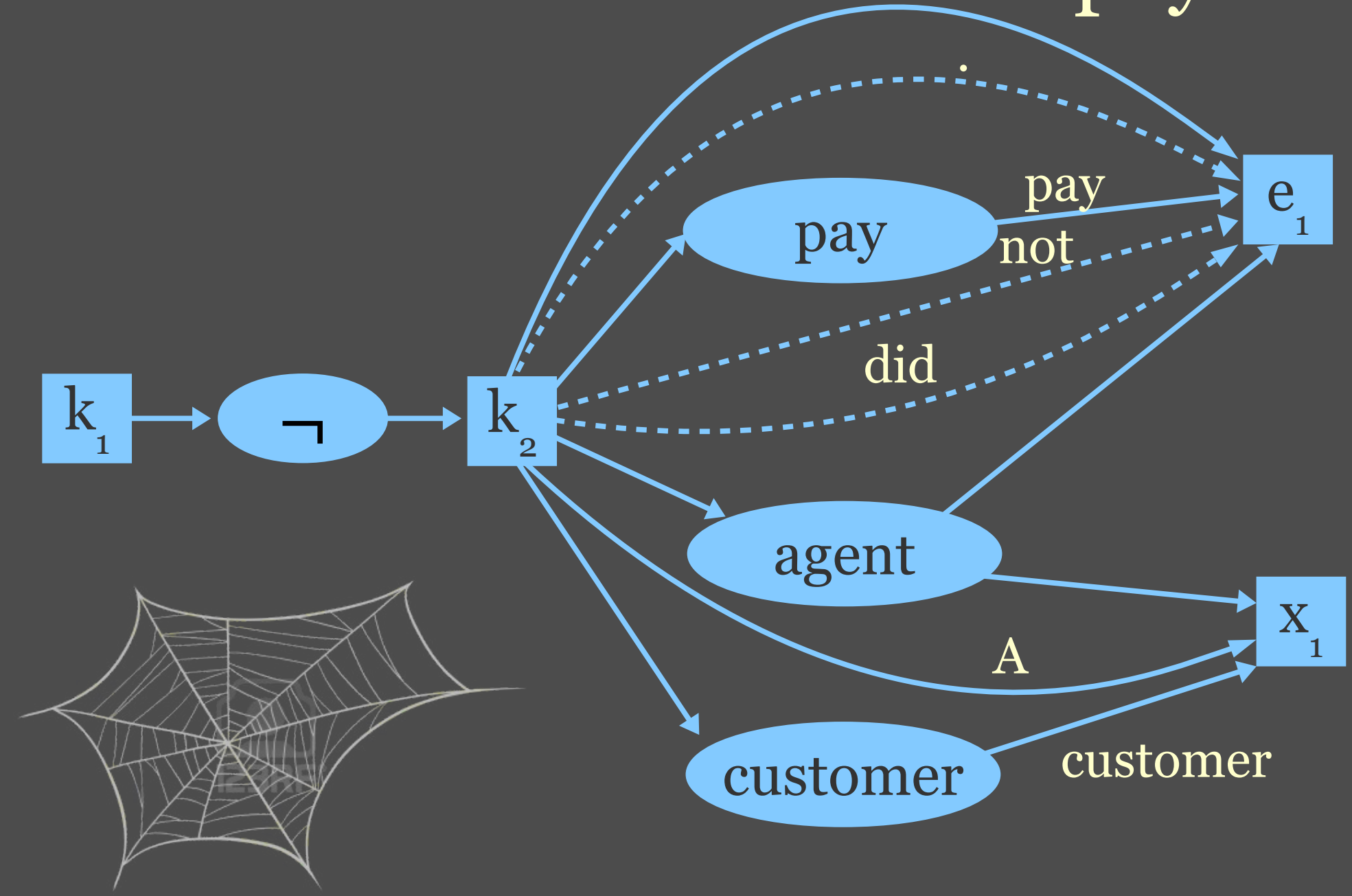
“A customer did not pay.”



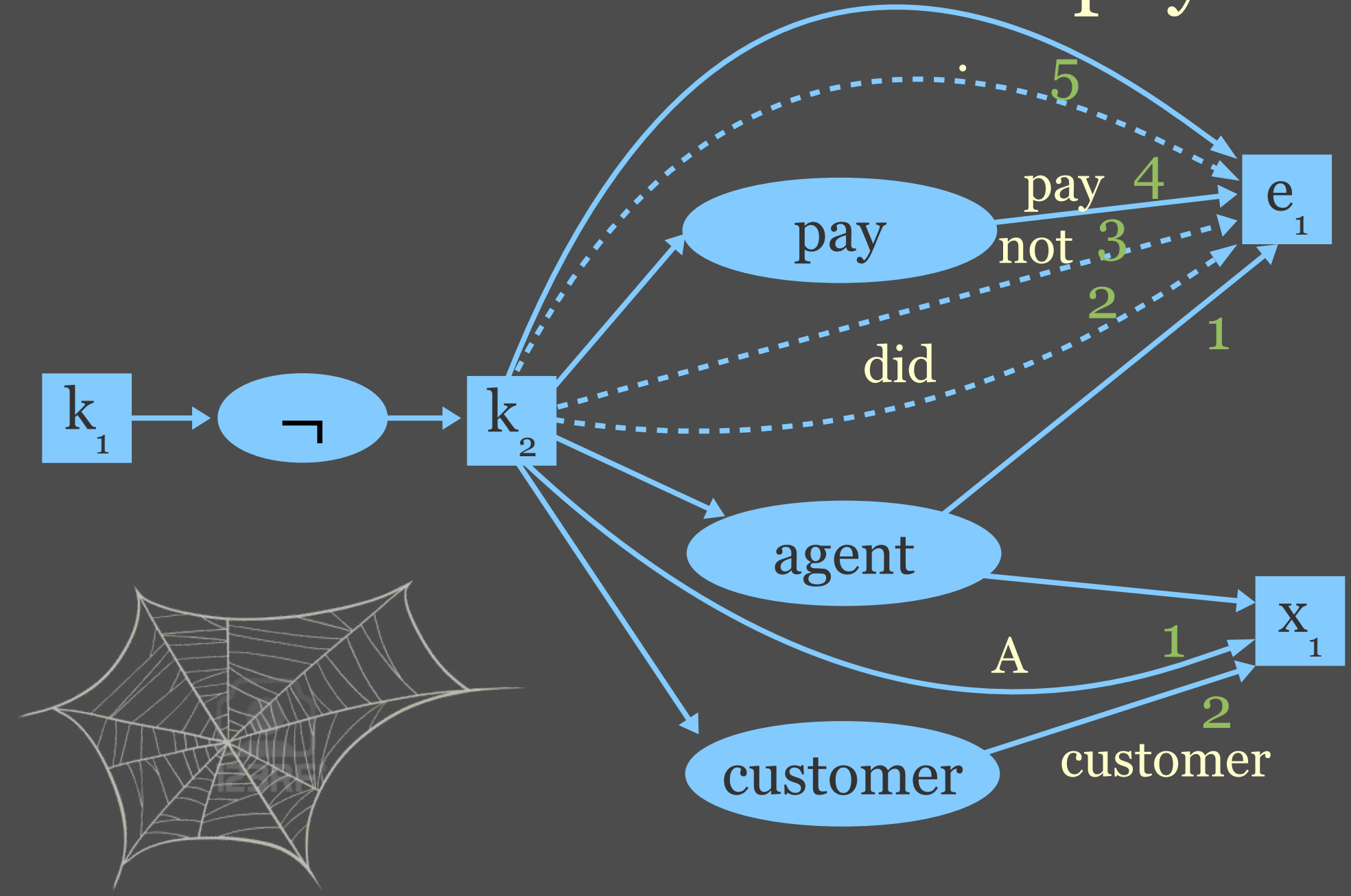
“A customer did not pay.”



“A customer did not pay.”

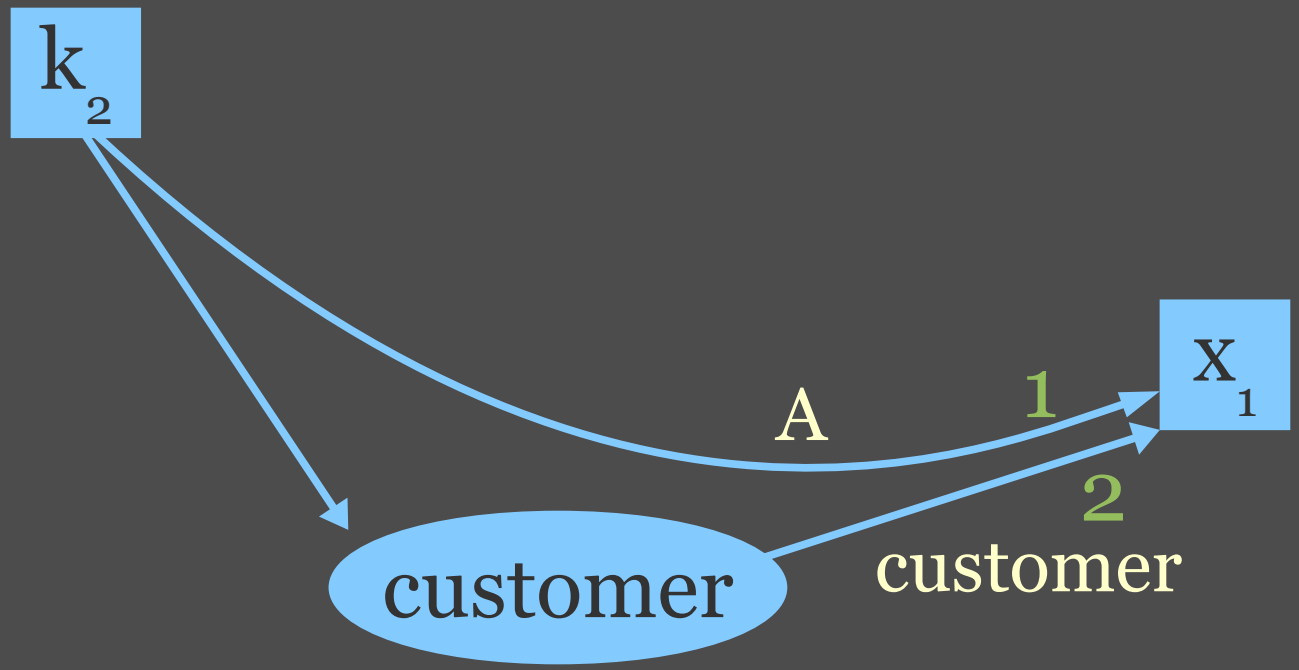


“A customer did not pay.”



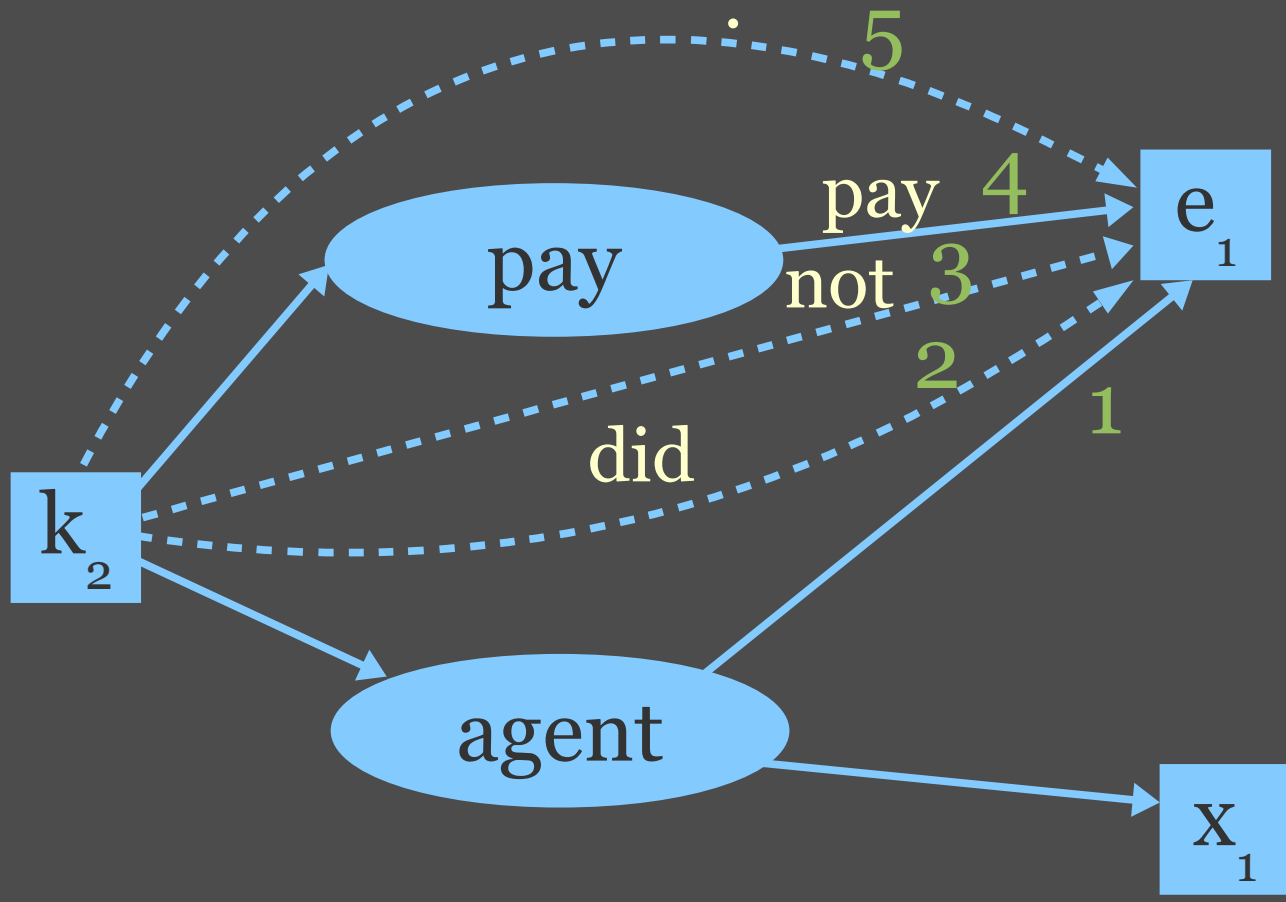
x_1 : A customer

1 2



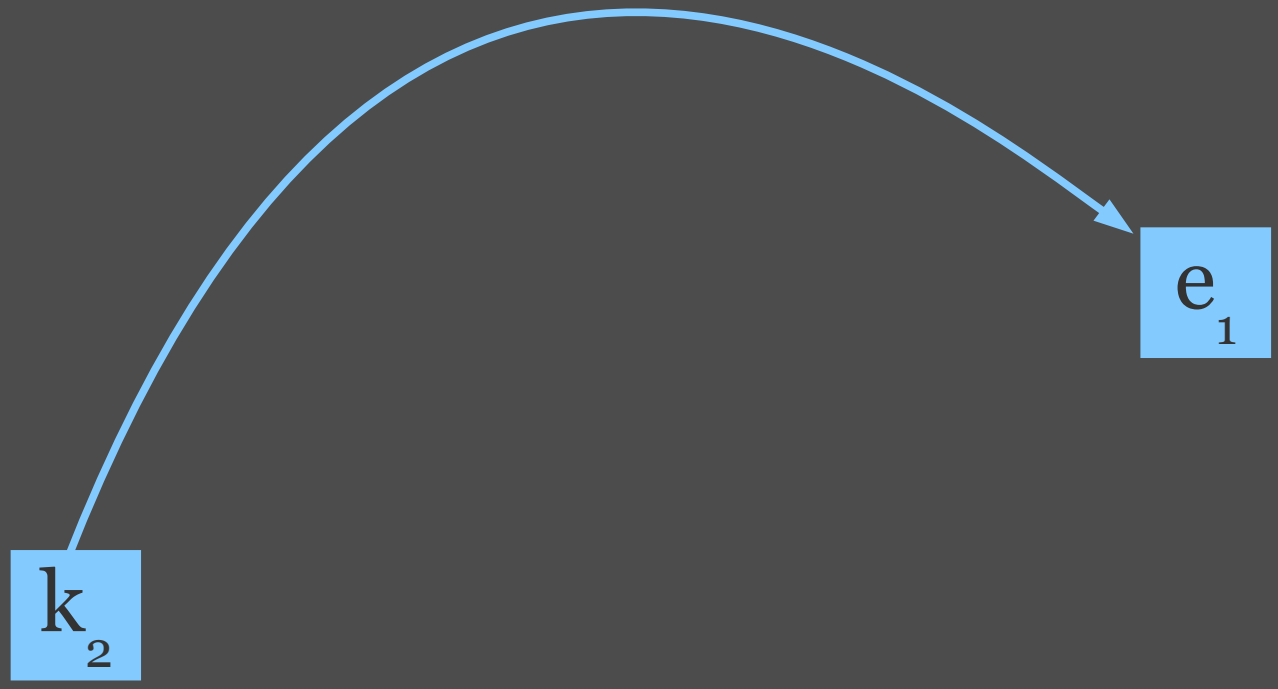
e_1 : x_1 did not pay .

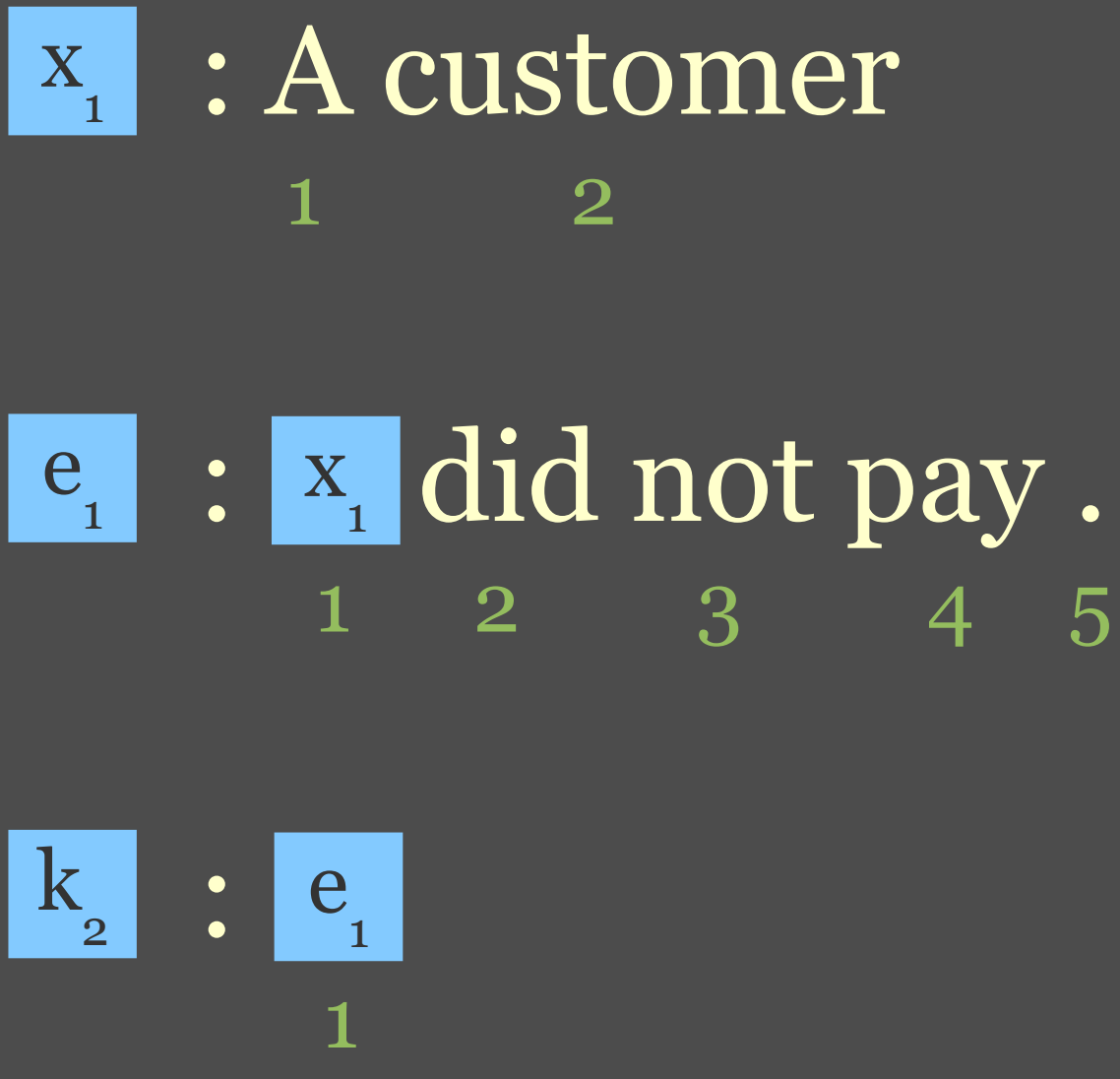
1 2 3 4 5

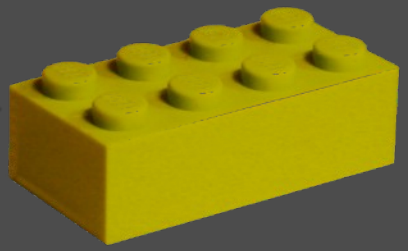


$k_2 :: e_1$

1

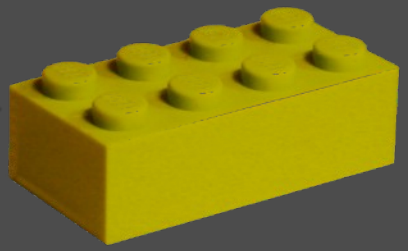


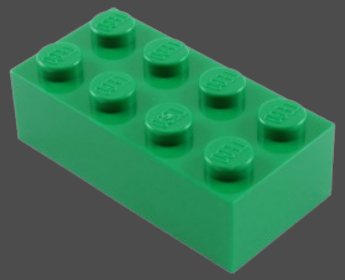

x_1 : A customer
1 2
e_1 : x_1 did not pay .
1 2 3 4 5
k_2 : e_1
1



x_1 : A customer

e_1 : x_1 did not pay .





x_1 : A customer

e_1 : x_1 did not pay .

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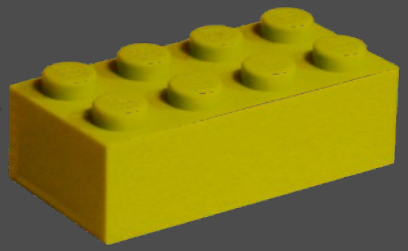
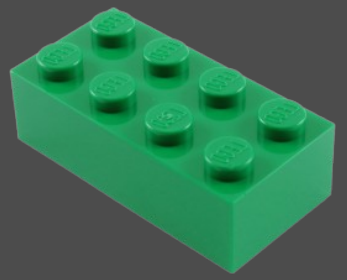
e_1 : A customer did not pay .





x_1 : A customer

e_1 : x_1 did not pay .

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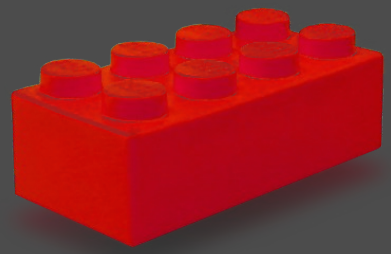
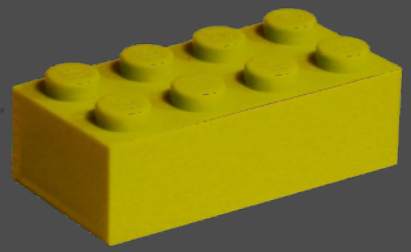
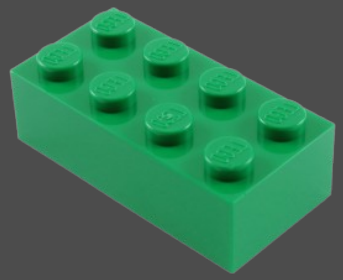
k_2 : e_1

e_1 : A customer did not pay .







x_1 : A customer

e_1 : x_1 did not pay .

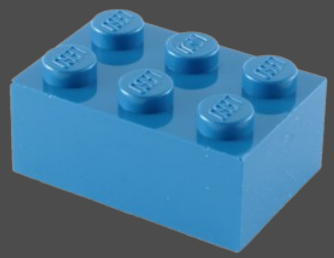
---

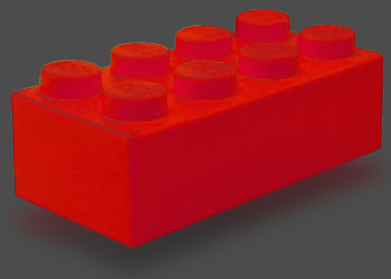
k_2 : e_1

e_1 : A customer did not pay .

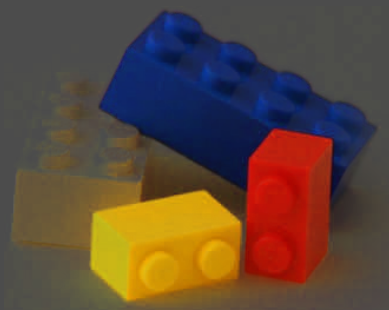
---

k_2 : A customer did not pay .



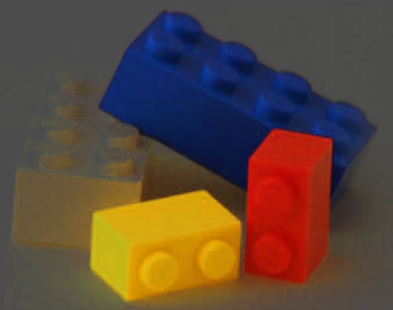


Michelle thinks that Obama smokes



Michelle thinks that Obama smokes

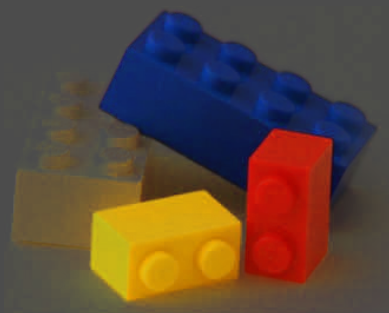
x_1 : Michelle



Michelle thinks that Obama smokes

x_1 : Michelle

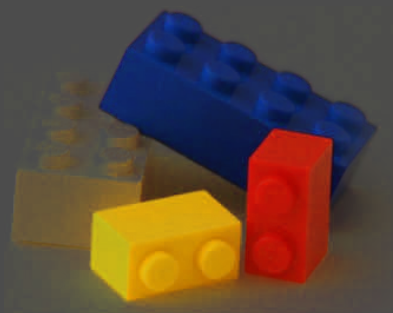
e_1 : x_1 thinks p_1



Michelle thinks that Obama smokes

x_1 : Michelle

e_1 : Michelle thinks p_1

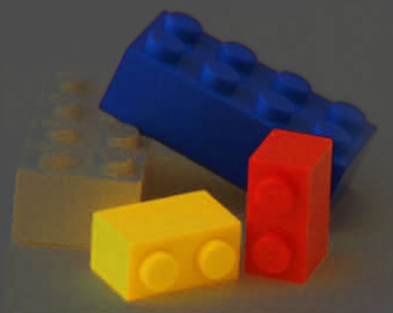


Michelle thinks that Obama smokes

x_1 : Michelle

e_1 : Michelle thinks p_1

k_1 : e_1

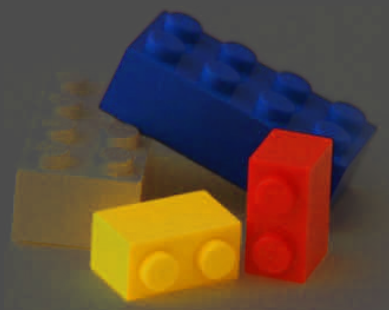


Michelle thinks that Obama smokes

x_1 : Michelle

e_1 : Michelle thinks p_1

k_1 : Michelle thinks p_1



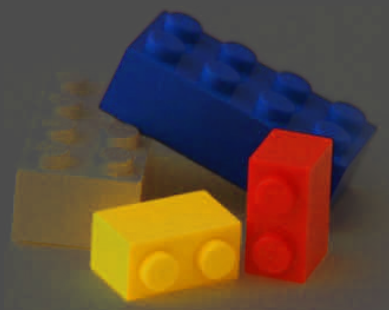
Michelle thinks that Obama smokes

x_1 : Michelle

x_2 : Obama

e_1 : Michelle thinks p_1

k_1 : Michelle thinks p_1



Michelle thinks that Obama smokes

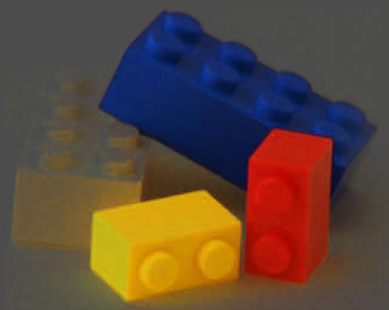
x_1 : Michelle

x_2 : Obama

e_1 : Michelle thinks p_1

e_2 : x_2 smokes

k_1 : Michelle thinks p_1



Michelle thinks that Obama smokes

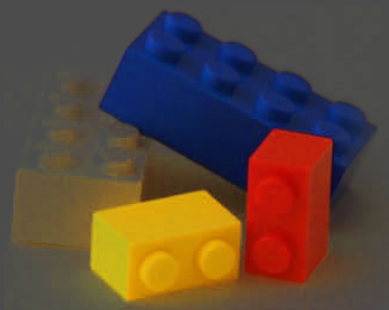
x_1 : Michelle

x_2 : Obama

e_1 : Michelle thinks p_1

e_2 : Obama smokes

k_1 : Michelle thinks p_1



Michelle thinks that Obama smokes

x_1 : Michelle

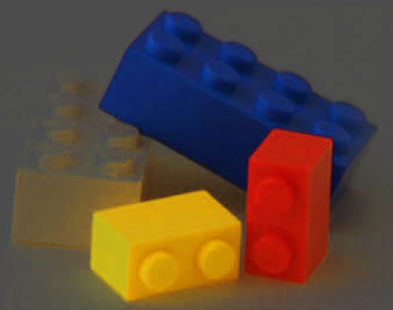
x_2 : Obama

e_1 : Michelle thinks p_1

e_2 : Obama smokes

k_1 : Michelle thinks p_1

p_1 : that e_2



Michelle thinks that Obama smokes

x_1 : Michelle

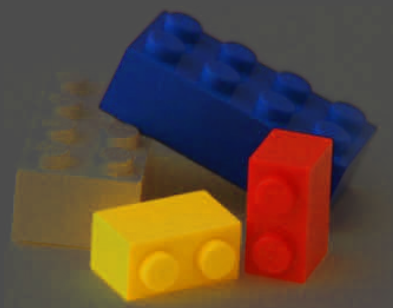
x_2 : Obama

e_1 : Michelle thinks p_1

e_2 : Obama smokes

k_1 : Michelle thinks p_1

p_1 : that Obama smokes



Michelle thinks that Obama smokes

x_1 : Michelle

x_2 : Obama

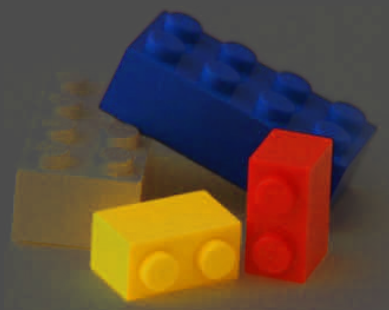
e_1 : Michelle thinks p_1

e_2 : Obama smokes

k_1 : Michelle thinks p_1

p_1 : that Obama smokes

k_1 : Michelle thinks that Obama smokes



Coordination

Fishing occurs and trawling occurs

vs.

Fishing and trawling occurs

Long distance dependencies

Which car does Bill believe John bought

Control verbs

John wants to swim

vs.

John wants John to swim

"A customer did not pay."

k_1	unary	¬		
¬	scope	k_2		
k_2	referent	e_1		
k_2	referent	x_1	?	?
k_2	event	pay		
k_2	concept	customer		
k_2	role	agent		
customer	instance	x_1	?	?
pay	instance	e_1	?	?
agent	internal	e_1	?	
agent	external	x_1		
k_2	surface	e_1	?	?
k_2	surface	e_1	?	?
k_2	surface	e_1	?	?

8k documents
1M tokens