# The Uniqueness Presupposition

Lecture 13

March 7, 2024

**Announcements:**

This lecture is supplemented by the following readings:

- Heim & Kratzer: Ch.4 (75–82)

Your fifth homework assignment is available and is due on March 21st.

## 1 Introduction

We currently have a semantic system for interpreting sentences that relies on the following set of rules:

(1) **Functional Application (FA)**
If X is a node that has two daughters, Y and Z, and if ⟦ Y ⟧ is a function whose domain contains ⟦ Z ⟧, then ⟦ X ⟧ = ⟦ Y ⟧(⟦ Z ⟧).

(2) **Predicate Modification (PM)**
If X is a node that has two daughters, Y and Z, and if ⟦ Y ⟧ and ⟦ Z ⟧ are in $D_{\langle e,t\rangle}$, then ⟦ X ⟧ = $[\lambda x : x \in D_e . [\![Y]\!](x) = T$ and $[\![Z]\!](x) = T$ ]

(3) **Non-Branching Nodes (NN) Rule**
If X is a non-branching node that has Y as its daughter, then ⟦ X ⟧ = ⟦ Y ⟧

(4) **Terminal Nodes (TN) Rule**
If X is a terminal node, then ⟦ X ⟧ is specified in the lexicon.

These rules are able to interpret structures built from lexical entries like the following:

(5) **Type *e* expressions**
⟦ NAME ⟧ = the thing referred to with NAME
⟦ the NP ⟧ = the unique $x$ that ⟦ NP ⟧($x$) = $T$

(6) **Type $\langle e, e\rangle$ expressions**
⟦ $D_\varnothing$ ⟧ = $[\lambda x : x \in D_e . x]$

(7) **Type $\langle\langle e,t\rangle,e\rangle$ expressions**
$[\![\text{ the }]\!] = [\lambda f : f \in D_{\langle e,t\rangle} \text{ . the unique } x \text{ such that } f(x) = T]$

(8) **Type $\langle e,t\rangle$ expressions**

a. $[\![\text{ VERB}_{intrans} ]\!] = [\lambda x : x \in D_e \text{ . } x \text{ VERBs ]}$
b. $[\![\text{ ADJ}_{int} ]\!] = [\lambda x : x \in D_e \text{ . } x \text{ is ADJECTIVE ]}$
c. $[\![\text{ NOUN }]\!] = [\lambda x : x \in D_e \text{ . } x \text{ is a NOUN ]}$

(9) **Type $\langle e,\langle e,t\rangle\rangle$ expressions**
$[\![\text{ VERB}_{trans} ]\!] = [\lambda x : x \in D_e \text{ . } [\lambda y : y \in D_e \text{ . } y \text{ VERBs } x]$

(10) **Type $\langle e,\langle e,\langle e,t\rangle\rangle\rangle$ expressions**
$[\![\text{ VERB}_{ditrans} ]\!] = [\lambda x : x \in D_e \text{ . } [\lambda y : y \in D_e \text{ . } [\lambda z : z \in D_e \text{ . } z \text{ VERBs } x\ y]]]$

(11) **Type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$ expressions**

a. $[\![\text{ is }]\!] = [\ \lambda f : f \in D_{\langle e,t\rangle} \text{ . } f]$
b. $[\![\text{ a }]\!] = [\ \lambda f : f \in D_{\langle e,t\rangle} \text{ . } f]$
c. $[\![\text{ ADJ}_{sub} ]\!] = [\lambda f : f \in D_{\langle e,t\rangle} \text{ . } [\lambda x : x \in D_e \text{ . } f(x) = T \text{ and } x \text{ is ADJ for entities in } \{y : f(y) = T\}]]$

This semantic system incorporates the results from our recent investigation of **definite descriptions**.

(12) Felix likes **the professor**.

This notably includes a lexical entry for the definite article *the*:

(13) **Type $\langle\langle e,t\rangle,e\rangle$ Definite Determiner**
$[\lambda f : f \in D_{\langle e,t\rangle} \text{ . the unique } x \text{ such that } f(x) = T]$

We are concerned today with some particular restrictions on the usage of definite descriptions. Namely, we will find that *the* presupposes the existence of a unique entity for which the $[\![\text{ NP }]\!]$ returns true.

As we will see, this type of presupposition can straightforwardly be written into the meaning of $[\![\text{ the }]\!]$ as a **contextual domain restrictions**:

(14) **Contextually restricted lexical entry for *the***

$[\![\text{ the }]\!] = [\lambda f : f \in D_{\langle e,t\rangle} \text{ and there is a unique } x \text{ in a contextually relevant set of entities } C \text{ such that } f(x) = T \text{ . the unique } x \text{ such that } f(x) = T]$

Allowing for a bit of mathematical notation simplifies this unwieldy entry somewhat:

(15) $[\![\text{ the }]\!] = [\lambda f : f \in D_{\langle e,t\rangle} \text{ and } |\{x : x \in C \text{ and } f(x) = T\}| = 1 \text{ . the unique } x \text{ such that } f(x) = T]$

## 2 The Semantics of Definite Descriptions: Review

Our goal, again, is to develop our semantic system to interpret common nouns in the argument positions of predicates. We are beginning this project by investigating the semantics of definite descriptions:

(16) **The president** golfs.

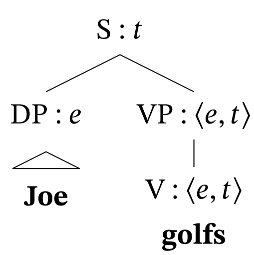
While it is a controversial issue, we can start from the basic intuition that definite descriptions, much like proper names, serve to denote entities.

(17) **Definite descriptions as type *e* expressions**

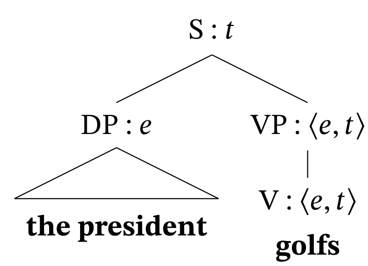
a. $[\![$ the president of the US $]\!]$ = Joe Biden
b. $[\![$ the professor of LIN 4307 $]\!]$ = Jason Overfelt
c. $[\![$ the capital of Michigan $]\!]$ = Lansing

In addition to being intuitive, this assertion makes it relatively straightforward to integrate such expression into our current semantic system:

(18)




(19)



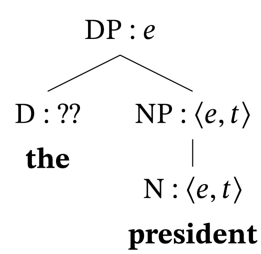

### 2.1 The Semantic Type of the Definite Article

**1. Known Semantic Types.** We start by listing out the semantic types we know and annotating the syntactic representation with this information.

(20) **Known Semantic Types in (21)**

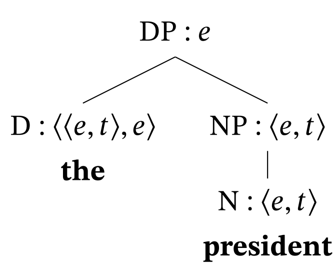
a. $[\![$ DP $]\!]$ $\in$ $D_e$
b. $[\![$ president $]\!]$ $\in$ $D_{\langle e,t\rangle}$

(21)




**2. Reasoning out the Semantic Type of the definite article *the*.** We appeal to the known semantic types, as well as the rules of composition, to determine that *the* must be of type $\langle\langle e,t\rangle, e\rangle$.

(22)



## 2.2 The Extension of the Definite Article

We now know what kind of expression the definite article *the* must be. It is a type $\langle\langle e,t\rangle,e\rangle$ function, meaning it maps functions from entities to truth values to entities.

We therefore need to develop a lexical entry for *the* that does the following:

- assigns as its extension a function of type $\langle\langle e,t\rangle,e\rangle$ and
- allows our system to derive an appropriate truth-conditional statement for sentences with definite descriptions.

Considering data like those above in (17), we can observe that $[\![$ the $]\!]$ combines with functions that all share a salient key property: out of the entirety of $D_e$, each function returns $T$ for only a single entity.

| | | | |
|---|---|---|---|
| (23) | a. | $[\lambda x \in D_e \,.\, x$ is a president of the US$]$ | $= T$ *iff* applied to Joe Biden (currently) |
| | b. | $[\lambda x \in D_e \,.\, x$ is a professor of LIN 4307$]$ | $= T$ *iff* applied to Jason Overfelt (currently) |
| | c. | $[\lambda x \in D_e \,.\, x$ is a capital of MI$]$ | $= T$ *iff* applied to Lansing (currently) |

The key generalization is that *the* systematically combines with a function of type $\langle e,t\rangle$ are returns that unique entity for which that function returns $T$.

| | | | | |
|---|---|---|---|---|
| (24) | a. | $[\![$ the $]\!]([\lambda x \in D_e \,.\, x$ is a president of the US$])$ | = | Joe Biden |
| | b. | $[\![$ the $]\!]([\lambda x \in D_e \,.\, x$ is a professor of LIN 4307$])$ | = | Jason Overfelt |
| | c. | $[\![$ the $]\!]([\lambda x \in D_e \,.\, x$ is a capital of MI$])$ | = | Lansing |

With this in mind, it is possible to provide a lexical entry for *the* that takes a type $\langle e,t\rangle$ NP as its argument and returns the unique entity for which $[\![$ NP $]\!](x) = T$.

(25) $[\![$ the $]\!] = [\lambda f : f \in D_{\langle e,t\rangle}$ . the unique $x$ such that $f(x) = T]$

Let's see how our extension for *the* contributes to the meaning of a definite description:

(26) **Calculation of the extension of the DP *the president***

| | | | |
|---|---|---|---|
| i. | $[\![\, [_{DP}$ the $[_{NP}$ president $]]\, ]\!]$ | = | (by FA) |
| ii. | $[\![$ the $]\!]([\![$ NP $]\!])$ | = | (by NN) |
| iii. | $[\![$ the $]\!]([\![$ president $]\!])$ | = | (by TN) |
| iv. | $[\lambda f \in D_{\langle e,t\rangle}$ . the unique $x$ such that $f(x) = T]([\![$ president $]\!])$ | = | (by LC) |
| v. | the unique $x$ such that $[\![$ president $]\!](x) = T$ | = | (by TN) |
| vi. | the unique $x$ such that $[\lambda y \in D_e \,.\, y$ is a president$](x) = T$ | = | (by LC, def.) |
| vii. | the unique $x$ such that $x$ is a president | = | (by facts) |
| viii. | Joe Biden | | |

## 3 Some Predictions of our Model: Undefinedness

Consider again the lexical entry for *the* that we have thus far developed:

(27) $[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle} \text{ . the unique } x \text{ such that } f(x) = T]$

**On Referentiality.** Given this entry, what should we expect the extension of the following DPs to be? That is what is the entity that they (currently) denote?

(28) a. ⟦ the **escalator in HHB** ⟧ = ??
b. ⟦ the **bus between OU and Rochester** ⟧ = ??
c. ⟦ the **sequel to *Barbie*** ⟧ = ??

The prediction, given our semantics for *the*, is that these DPs simply won't have a denotation:

- The definite article ⟦ the ⟧ takes as an argument a type $\langle e, t\rangle$ NP and returns the unique entity for which ⟦ NP ⟧ returns true.
- But, if there is no unique entity for which some ⟦ NP ⟧ returns true, ⟦ the ⟧ cannot possibly return as a value that entity, which doesn't exist.
- Thus, the DPs above should lack an extension as a consequence of the fact that they are not interpretable by our semantic system.

And, perhaps there's an intuitive level at which this is correct result. I certainly can't use any of these DPs refer to anything. And, even if I tried, no one would have any idea what I'm referring to.

**On Interpretability.** Intuitions about referentiality aside, this conclusion leads us to a second prediction regarding sentences that contain these DPs:

(29) a. ⟦ **The escalator in HHB** is broken ⟧ = ??
b. ⟦ **The bus between OU and Rochester** is on time ⟧ = ??
c. ⟦ **The sequel to *Barbie*** is fantastic ⟧ = ??

If these DPs lack an extension, any sentence containing one of them should also lack an extension.

- The rule of Functional Application should interpret each sentence above as: ⟦ VP ⟧(⟦ DP ⟧).

  (30) **Functional Application (FA)**
  If X is a node that has two daughters, Y and Z, and if ⟦ Y ⟧ is a function whose domain contains ⟦ Z ⟧, then ⟦ X ⟧ = ⟦ Y ⟧(⟦ Z ⟧).

- But, if the DP in each sentence does not have an extension, the extension of the VP cannot possibly be applied to the extension of the DP, which doesn't exist.
- Thus, the sentences above should be neither $T$ nor $F$ as a consequence of the fact that they cannot be interpreted by our semantic system.

Again, there is good reason for thinking that this is the correct result. Consider the example in (31).

(31) The escalator in HHB is broken.

There is no objection to the claim that (31) is not true. But it's somewhat less clear that it is accurate to claim that (31) is not false. That is, it is not uncommon to encounter the intuition that (31) is a false statement.

But, suppose that (31) were $F$:

- The falsity of (31) would necessarily entail the truth of its negation:

  (32) **Effect of negation on entailment relations between sentences**

  | $p$ | | $\neg p$ |
  |---|---|---|
  | T | $\Rightarrow$ | F |
  | F | $\Rightarrow$ | T |

- So, if (31) is false it would follow that (33) is true:

  (33) The escalator in HHB is not broken.

- However, for many people, there is a relatively clear intuition is that (33) not true.

Thus, we should consider a sentence like (31) to be neither $T$ nor $F$.

**Interim Summary.** We have seen in this section that ⟦ the ⟧ is incapable of taking some NP as its argument if there is no unique entity for which the extension of that NP returns $T$.

The result in such instances is that ⟦ the ⟧ applied to that NP fails to return a value. The resulting DPs, therefore, cannot be assigned an extension.

The knock-on effect that this has is that sentences containing such DPs also fail to be assigned an extension. Such sentences can be neither true nor false.

**Looking Ahead:** Restating these conclusions somewhat differently reveals something interesting about the results in this section:

We have observed that a sentence containing a definite description is true or false only if ⟦ the ⟧ is applied to some NP for which there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

In other words, an sentence containing a definite description introduces the **presupposition** that ⟦ the ⟧ is applied to some NP for which there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

This realization will guide our path forward. We will attempt to incorporate this non-asserted informational content into the meaning of the definite article *the*. Moreover, we should like to do it in a way that failure to satisfy this presupposition results in undefinedness.

Toward this end, a review of presuppositional content may prove useful.

# 4 A Review of Presuppositions

## 4.1 Presupposed Information

A presupposition is non-asserted information conveyed by an expression that is required background knowledge and is shared by or accessible to both the speaker and the hearer.

(34) **Presupposition**
Informational content that is taken for granted by an expression

A presupposition is information that is necessary in order to evaluate the truth conditions of an expression. Thus, if some information is presupposed the following equivalency holds:

(35) **Diagnostic Equivalency for Presuppositions**
A sentence *S* presupposes *p* = *S* is true or false only if *p*.

As a point of demonstration, let's consider the sentence in (36):

(36) The escalator in HHB is broken.

The information that there is a unique escalator in HHB is presupposed by the sentence above. This claim is supported by the following equivalency:

(37) *The escalator in HHB is broken* presupposes that there is a unique escalator in HHB =
*The escalator in HHB is broken* is true or false only if there is a unique escalator in HHB.

In other words, determining the truth value for *The escalator in HHB is broken* requires that the addressee knows, and accepts to be true, the proposition that there is a unique escalator in HHB.

## 4.2 Identifying Presuppositions

As informational content that is taken for granted by an expression, presuppositions are a type of entailment. They are special entailments, however, by virtue of being implicit in the discourse and, therefore, non-asserted informational content.

It is because they are entailed and necessarily taken for granted by an expression, that they are neither **cancelable** nor **reinforceable**.

(38) **Cancelability**
"*S* and/but not *p*" is consistent.

(39) **Reinforceability**
"*S* and/but *p*" is not redundant

These environments provide us diagnostics to determine if some identified non-asserted content is a presupposition. Recall that these distinguish presuppositions from implicatures.

As a point of illustration, consider how the hypothesized presupposition of (36) behaves in these contexts:

(40) #The escalator in HHB is broken and/but there is no unique escalator in HHB. (inconsistent)

(41) #The escalator in HHB is broken and/but there is a unique escalator in HHB. (redundant)

The informational content that *there is a unique escalator in HHB* is neither cancelable nor reinforceable. This reflects the fact that it is information that is necessarily taken for granted by (36) as being true.

Presuppositions can also be distinguished from standard entailments by the fact that presuppositions **project**. That is, presuppositions "survive" in contexts where other entailments disappear.

(42) a. **Presupposition**
The escalator in HHB is broken. $\rightarrow$ there is a unique escalator in HHB.

b. (i) **Negation**
The escalator in HHB is**n't** broken. $\rightarrow$ there is a unique escalator in HHB.

(ii) **Questions**
**Is** the escalator in HHB broken? $\rightarrow$ there is a unique escalator in HHB.

(iii) **Possibility Modals**
**Maybe** the escalator in HHB is broken. $\rightarrow$ there is a unique escalator in HHB.

The observations above all converge on the idea that a definite descriptions conveys the presupposition that there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

## 5 Presuppositions as Domain Restrictions

We can turn now to our goal of incorporating this presuppositional meaning associated with the definite article *the* into our semantic system.

Towards this end, let's start by appreciating the fact that we understand $[\![ \text{the} ]\!]$ to represent a function.

(43) $[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle} \text{ . the unique } x \text{ such that } f(x) = T]$

And, as we saw in section 2, there are certain NPs of type $\langle e, t \rangle$ for which this function fails to return a value. These include any $\text{NP}_\varnothing$, for which there is no unique entity such that $[\![ \text{NP}_\varnothing ]\!](x) = T$.

(44) $[\![ \text{the } \textbf{bus between OU and Rochester} ]\!] = \varnothing$

As a function that fails to return a value for some $\text{NP}_\varnothing$, we can say that $[\![ \text{the} ]\!]$ is **undefined** for $\text{NP}_\varnothing$.

Now, being undefined for some $\text{NP}_\varnothing$ also means that $\text{NP}_\varnothing$ is not in the domain of $[\![ \text{the} ]\!]$. There can be no ordered pair containing $\text{NP}_\varnothing$ as the first member because there could be no second member.

This means that, in actuality, the domain of $[\![ \text{the} ]\!]$ is not $D_{\langle e,t \rangle}$. The domain of $[\![ \text{the} ]\!]$ is in fact a restricted subset of $D_{\langle e,t \rangle}$, containing only those NPs for which there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

It is no huge leap, then, to see this as the source of our existence presupposition.

A sentence containing a definite description can be true or false only if there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$ because the domain of $[\![ \text{the} ]\!]$ only consists of NPs for which there is a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

By thinking about presuppositions in these terms—as restrictions on the domains of functions—our lambda notation provides a straightforward way for incorporating this dimension of meaning into the extension of $[\![ \text{the} ]\!]$.

Recall that our lambda notation provides a specification of the domain condition for a function.

(45) **Lambda Notation for Functions**

$$[\, \lambda x : \underbrace{x \in D}_{\textit{domain condition}} \; . \; \ldots\, x \,\ldots \,]$$

This makes it possible to write a **domain restriction** directly into the meaning of any given lexical item including the definite article *the*:

(46) **Domain restricted lexical entry for *the***

$[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle}$ and there is a unique $x$ such that $f(x) = T$ .
the unique $x$ such that $f(x) = T]$

Allowing for a bit of mathematical notation lets us simply this new lexical entry somewhat:

(47) $[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle}$ and $|\{x : f(x) = T\}| = 1$ . the unique $x$ such that $f(x) = T]$

In this way, our semantic system is able to capture the non-asserted presuppositional content expressed by particular lexical items alongside their asserted content.

When $[\![ \text{the} ]\!]$ combines with an NP argument that satisfies is presuppositional domain restriction, the resulting DP denotes the unique entity $x$ such that $[\![ \text{NP} ]\!](x) = T$.

(48)
a. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is a president of the US$])$ = Joe Biden
b. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is a professor of LIN 4307$])$ = Jason Overfelt
c. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is a capital of MI$])$ = Lansing

Otherwise, it is correctly expected that our system will fail to assign the DP an extension, result in a **presupposition failure**, and render the containing sentence undefined.

(49)
a. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is an escalator in HHB$])$ = $\varnothing$
b. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is a bus between OU and Rochester$])$ = $\varnothing$
c. $[\![ \text{the} ]\!]([\lambda x \in D_e \,.\, x$ is a sequel to *Barbie*$])$ = $\varnothing$

## 6 Contextual Domain Restriction

According to our refined lexical entry above, the definite article *the* can only take an NP as an argument if there is a unique $x$ such that $[\![$ NP $]\!](x) = T$.

(50) $[\![$ the $]\!] = [\lambda f : f \in D_{\langle e,t \rangle}$ and there is a unique $x$ such that $f(x) = T$ . the unique $x$ such that $f(x) = T]$

(51) $[\![$ the $]\!] = [\lambda f : f \in D_{\langle e,t \rangle}$ and $|\{x : f(x) = T\}| = 1$ . the unique $x$ such that $f(x) = T]$

**On Uniqueness.** But what happens if *the* takes as its argument an NP which is true of many entities?

(52) a. $[\![$ the **chair in this room** $]\!]$ = ??
b. $[\![$ the **professor at OU** $]\!]$ = ??
c. $[\![$ the **city in Michigan** $]\!]$ = ??

The prediction, given our current semantics for *the* and its associated presuppositional domain restriction, is that these DPs also cannot be provided an extension:

- The definite article $[\![$ the $]\!]$ can only take as an argument a type $\langle e, t \rangle$ NP for which there is a unique $x$ such that $[\![$ NP $]\!](x) = T$.
- If there are many entities for which some $[\![$ NP $]\!]$ returns true, $[\![$ the $]\!]$ cannot cannot take that NP as an argument.
- Thus, the DPs above should lack an extension as a consequence of the fact that $[\![$ the $]\!]$ is not defined for the NPs they are composed with.

On an intuitive level, this again seems to be the correct result. I can't use any of these DPs refer to anything. And, even if I tried, no one would understand which entity I was trying to refer to.

Moreover, sentences that contain these DPs seem to lack an extension, being neither true nor false.

(53) a. $[\![$ **The chair in this room** is dirty $]\!]$ = ??
b. $[\![$ **The professor at OU** is new $]\!]$ = ??
c. $[\![$ **The city in Michigan** is beautiful $]\!]$ = ??

To summarize, $[\![$ the $]\!]$ is incapable of taking some NP as its argument if there are many entities for which the extension of that NP returns true.

This is consistent with our previous findings that an expression containing a definite description introduces a presupposition that $[\![$ the $]\!]$ is applied to some NP for which there is a unique $x$ such that $[\![$ NP $]\!](x) = T$.

Stated differently, $[\![$ the $]\!]$ is only defined for NP arguments if there is a unique entity $x$ such that $[\![$ NP $]\!](x) = T$. Otherwise, the result is a presupposition failure.

**On Context-Dependence.** There are, however, many instances in which we regularly use definite descriptions containing NPs that are true of more than one thing and the result is fully interpretable.

(54) a. **The cat** is hungry.
b. **The door** is open.
c. **The chair** is dirty.

The generally accepted solution proposes that domain restriction, and therefore the relevant presupposition, is actually context-dependent.

In any given context of utterance, there will only be a small subset of $D_e$ that we consider to be relevant. We can refer to this contextually relevant set of entities as $C$.

The idea is that when we use a definite description *the NP*, we are in fact referring to the unique entity $x$ from $C$ that satisfies the domain restriction on NP.

This means that, even though we know that there are many cats, doors, and couches in the entirely of $D_e$, we can use a definite description when $C$ contains a unique $x$ such that $[\![ \text{NP} ]\!](x) = T$.

(55) **Contextually domain restricted lexical entry for *the***

$$[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle} \text{ and there is a unique } x \in C \text{ such that } f(x) = T . \text{ the unique } x \text{ such that } f(x) = T]$$

(56) $$[\![ \text{the} ]\!] = [\lambda f : f \in D_{\langle e,t \rangle} \text{ and } |\{x : x \in C \text{ and } f(x) = T\}| = 1 . \text{ the unique } x \text{ such that } f(x) = T]$$

This adjustment comes with a number of benefits:

- We correctly predict that the acceptability of a definite description will in fact be closely tied to the context of utterance:

  (57) *Context : I am at home and I own exactly one cat.*
  The cat is hungry.

  (58) *Context : I am at home and I own exactly two cats, both of which are present.*
  # The cat is hungry.

- We more accurately model the actual presuppositions introduced by definite descriptions .

  (59) **Cancelability**
  a. The cat is hungry and/but there is no unique cat.
  b. #The cat is hungry and/but there is no unique cat in this context.

  (60) **Reinforceability**
  a. The cat is hungry and/but there is a unique cat.
  b. #The cat is hungry and/but there is a unique cat in this context.

- Moreover, that such context-dependent objects like $C$ are salient in the discourse is evidenced by the fact that we can, in some sense, provide them explicitly as means of restrict the domain of some NP.

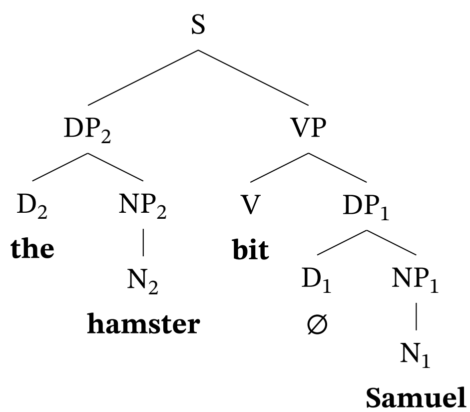
(61) #The chair **in this room** is dirty.

(62) The projector **in this room** is broken.

## 7 Practice

**Exercise.** Please provide a semantic proof of the truth-conditions of the following sentence:

(63)




In order to do this, we will need to provide the extensions of the lexical items and provide a step-by-step proof of the intuitive truth conditions.