

Non-verbal predicates. Modifiers.

[Heim-Kratzer Chapter 4]

1. Introduction.

■ Semantically vacuous words: **of**, **be** and **a** in (1)-(3):

- (1) Paul is rich.
- (2) Kaline is a cat.
- (3) Susan is proud of John.

■ Verbal and non-verbal predicates:

(4) Samples:

	1-Place Predicates (“intransitive”)	2-Place Predicates (“transitive”)
Verbs	sleep, jump, snore	kiss, love, touch
Nouns	cat, table, girl	part(-of), relative(-of), advisor(-of)
Adjectives	red, vegetarian, female	fond(-of), keen(-on), proud(-of)
Prepositions		from, to, on

QUESTION 1: Give the denotation of the 2-place adjective **proud(-of)** in λ -notation.

(5) $\llbracket \text{proud(-of)} \rrbracket =$

QUESTION 2: Do the compositional semantic interpretation of (6), spelling out the meaning of each non-vacuous lexical item. Treat **and** as conjoining the 1-place predicates **student** and **female**.

(6) Ani is a student and female.

2. Predicates as restrictive modifiers.

(7) Ani is a female student.

■ Possible **IMPLEMENTATION A**: Type $\langle e, t \rangle$ and new compositional rule.

(8) $\llbracket \text{female}_{\langle e, t \rangle} \rrbracket^s = \lambda x \in D_e. \text{FEMALE}(x)$

(9) Predicate Modification (PM):
 If α has the form α , and β and γ are both in $D_{\langle e, t \rangle}$,

$$\begin{array}{c} \alpha \\ \swarrow \quad \searrow \\ \beta \quad \gamma \end{array}$$

then $\llbracket \alpha \rrbracket^s = \lambda x \in D_e. \llbracket \beta \rrbracket^s(x) = 1 \wedge \llbracket \gamma \rrbracket^s(x) = 1$
 $\lambda x \in D_e. \llbracket \beta \rrbracket^s(x) = \llbracket \gamma \rrbracket^s(x) = 1$

QUESTION 3: Give a syntactic structure for (10) and spell out its corresponding semantic computation under implementation A:

(10) Ani is a female student proud of Pat.

■ Possible **IMPLEMENTATION B**: Type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ and just Functional Application.

(11) $\llbracket \text{female}_{\langle \langle e, t \rangle, \langle e, t \rangle \rangle} \rrbracket^s = \lambda f \in D_{\langle e, t \rangle}. \lambda x \in D_e. f(x) = 1 \wedge \text{FEMALE}(x)$

(12) Functional Application:
 If α has the form α , then $\llbracket \alpha \rrbracket^s = \llbracket \beta \rrbracket^s (\llbracket \gamma \rrbracket^s)$ or $\llbracket \alpha \rrbracket^s = \llbracket \gamma \rrbracket^s (\llbracket \beta \rrbracket^s)$,
 whatever is defined.

$$\begin{array}{c} \alpha \\ \swarrow \quad \searrow \\ \beta \quad \gamma \end{array}$$

QUESTION 4: Spell out the denotation of **proud** under implementation B. Then, do the semantic computation of (10).

(13) $\llbracket \text{proud(-of)} \rrbracket^s =$

■ Problem with implementation B: the predicates at issue can also appear after **be** by themselves.

(14) a. Ani is female.
 b. Ani is fond of Pat.

Possible solutions:

- To give a suitable denotation for **be**. See QUESTION 5. But **be** + $\langle e, t \rangle$ also possible.
- Dummy N[?] (Siegel)
- Every predicate has two denotations:
 two different lexical entries in Lexikon or
 one entry in Lexikon, associated with several related denotations by type-shifting.

QUESTION 5: Propose a denotation for **be** as taking an argument of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$.

(15) $\llbracket \text{be}_{\langle \langle e, t \rangle, \langle e, t \rangle \rangle} \rrbracket^s =$

3. Kinds of adjectives.

(Siegel 76, Partee 95)

■ Intersective adjectives: **carnivorous, four-legged, red(?)**...

(16) Intersectivity:

Intuitively, if we view predicates as denoting sets:

$$\llbracket \text{carnivorous N}' \rrbracket^s = \llbracket \text{carnivorous} \rrbracket^s \cap \llbracket \text{N}' \rrbracket^s$$

- (17) a. Aphrodita is a carnivorous orchidee.
b. Aphrodita is carnivorous and Aphrodita is an orchidee.
c. Aphrodita is a present from Carl.
d. Aphrodita is a carnivorous present from Carl.
Conjunction: $a \Rightarrow b$; Substitution: $a \text{ and } c \Rightarrow d$

■ Non-intersective adjectives: **skillful, beautiful, proud**,...

- (18) a. Suzanne is a skillful lawyer.
b. Suzanne is skillful and Susanne is a lawyer.
c. Suzanne is a plumber.
b. Suzanne is a skillful plumber.
* Conjunction: $a \not\Rightarrow b$; *Substitution: $a \text{ and } c \not\Rightarrow d$

QUESTION 6: Think of examples with **beautiful** and **proud** illustrating the same point.

(19) Subsectivity:

Intuitively, if we view predicates as denoting sets:

$$\llbracket \text{skillful N}' \rrbracket^s \subseteq \llbracket \text{N}' \rrbracket^s$$

- (20) a. Suzanne is a skillful lawyer.
b. Suzanne is a lawyer.
“Conservation”: $a \Rightarrow b$

■ Non-intersective, non-subsective adjectives: **former, alleged**, ...

- (21) a. Esmeralda is a former senator.
b. Esmeralda is former and Esmeralda is a senator.
c. Esmeralda is a golf-player.
d. Esmeralda is a former golf-player.
* Conjunction: $a \not\Rightarrow b$; *Substitution: $a \text{ and } c \not\Rightarrow d$

- (22) a. Esmeralda is a former senator.
b. Esmeralda is a senator.
“Conservation”: $a \not\Rightarrow b$

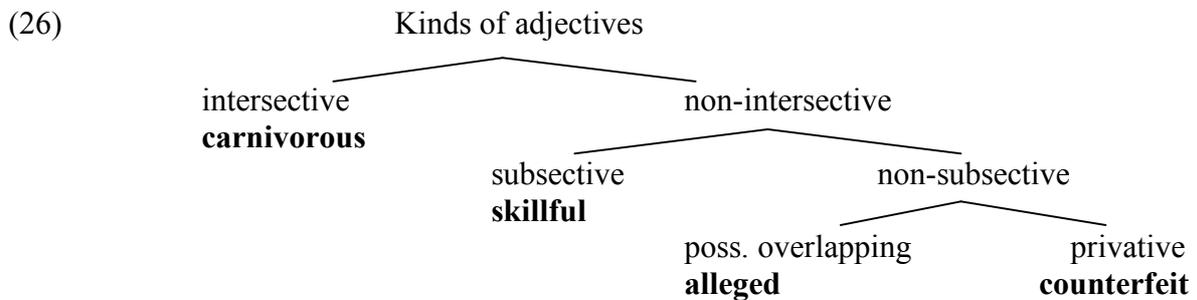
(23) Possible overlap:
 Intuitively, if we view predicates as denoting sets:
 It is not necessary that $[[\text{former/alleged N}']^s \cap [[\text{N}']^s = \emptyset$

- (24) a. Diamandis is an alleged thief.
 b. Diamandis is a thief.

■ Non-intersective, non-subjective, non-overlapping adjectives, privative: **counterfeit**, **fake**...

- (25) a. This is a counterfeit dollar.
 b. This is a dollar.
 a ?? \Rightarrow b

■ The big picture:



■ CONCLUSION 1: we have non-intersective adjectives for which our Predicate Modification Rule in (9) would not work. For those, we should use the alternative line, where adjectives have a more underspecified denotation of type $\langle\langle et \rangle, \langle et \rangle\rangle$.

■ Context dependent adjectives: **tall**, **small**, ...

- (27) a. Win is a tall 14-year old.
 b. Win is a basket-ball player.
 c. Win is a tall basket-ball player.
 a and b $\not\Rightarrow$ c

- (28) Jumbo is a small elephant.
 a. "Small for an elephant"
 b. "Small for some comparison class" (King Kong scenario).

■ CONCLUSION 2: even though **tall/small** do not seem intersective prima facie, they can still be analysed as such once we bring in context-dependency. Hence, add them to (26).

4. Summary on Modifiers.

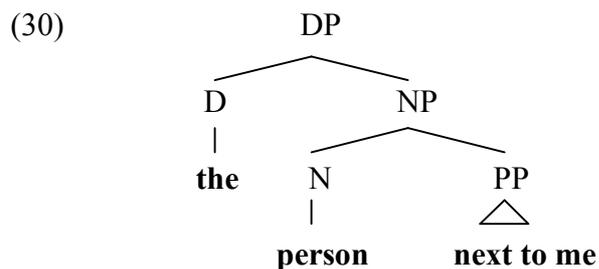
- Two possible strategies to deal with Modifiers:
 - Implementation A: Predicate Modification; **female** has type $\langle e,t \rangle$
 - Implementation B: Just Functional Application; **female** has both type $\langle e,t \rangle$ and $\langle \langle e,t \rangle, \langle e,t \rangle \rangle$, related by type-shifting.
- There are several types of adjectives, according to the way they modify the denotation of the N': schema (26). Also, some may be context dependent: **tall/small**.
- Some adjectives (non-intersective ones) need type $\langle et,et \rangle$ anyway. So, at least for those we need implementation B. In the book, though, they mostly use intersective adjectives and their $\langle e,t \rangle$ denotation, for the sake of simplicity.

5. The definite article: the.

- **The** + NP (definite description) as a “compound” proper name (FREGE’s approach):

- (29)
- a. Maria Rosa.
 - b. My older sister. (=the older sister of mine)
 - c. The person next to me.

- Its denotation; existence and uniqueness (when singular) presupposition:



- (31)
- a. The ballroom in building G.
 - b. The bathroom in building G.

(32) $\llbracket \mathbf{The} \rrbracket$ is a *partial* function from $D_{\langle et \rangle}$ to D_e . Hence, $\llbracket \mathbf{the} \rrbracket \in D_{\langle \langle et \rangle, e \rangle}$.

(33) $\llbracket \mathbf{The}_{\langle \langle e,t \rangle, e \rangle} \rrbracket^{s.g} = \lambda P : P \in D_{\langle et \rangle}$ and there is exactly one x for which $P(x)=1$.
the unique y such that $P(y)=1$.

■ Partial denotations.

There is a difference between presupposition (= information taken for granted) and at-issue content (=what we are actually asserting, negating, questioning, hypothesizing, etc).
Take *s* to be the actual situation:

- (34) a. $\llbracket \text{The Dept. Linguistics is on the fifth floor} \rrbracket^s = 0$
 b. $\llbracket \text{The Dept. Linguistics isn't on the fifth floor} \rrbracket^s = 1$
- (35) a. $\llbracket \text{The ballroom in building G is on the fifth floor} \rrbracket^s = 0?$
 b. $\llbracket \text{The ballroom in building G isn't on the fifth floor} \rrbracket^s = 1???$
- (36) **Susanne will be late again.**
Susanne won't be late again.
Will Susanne be late again?
If Susanne is late again, people will be upset.
 a. Presupposition: Susanne has been late in the past.
 b. At-issue content: Susanne will be late.
- (37) **Susanne stopped drinking.**
Susanne didn't stop drinking.
Did Susanne stop drinking?
If Susanne stops drinking, then we will be happier.
 a. Presupposition: Susanne drank for an indefinite period of time previous to *t*.
 b. At-issue content: At certain point in time *t* and for a while, she didn't drink.
- (38) **The ballroom in building G is on the fifth floor.**
 a. Presupposition: There is a unique ballroom in building G.
 b. Assertion: That object (the unique ballroom in G) is on the fifth floor.
- (39) $\llbracket \text{The ballroom in Williams Hall is on the fifth floor} \rrbracket^{s_1} =$
 1 if there is a unique ballroom in G and it is on 5th floor in *s*₁.
 0 if there is a unique ballroom in G and it is not on 5th floor in *s*₁.
 No semantic value if there is no unique ballroom in G.

■ The position of modifiers within the Determiner Phrase

