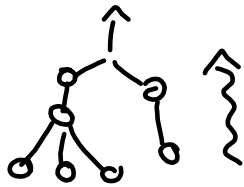


Slides 542 / 543

S&L: **bottom-up-approach**
 (relational algebra) based on **structural induction**
 (on expressions/terms)



Mai 13-10:07

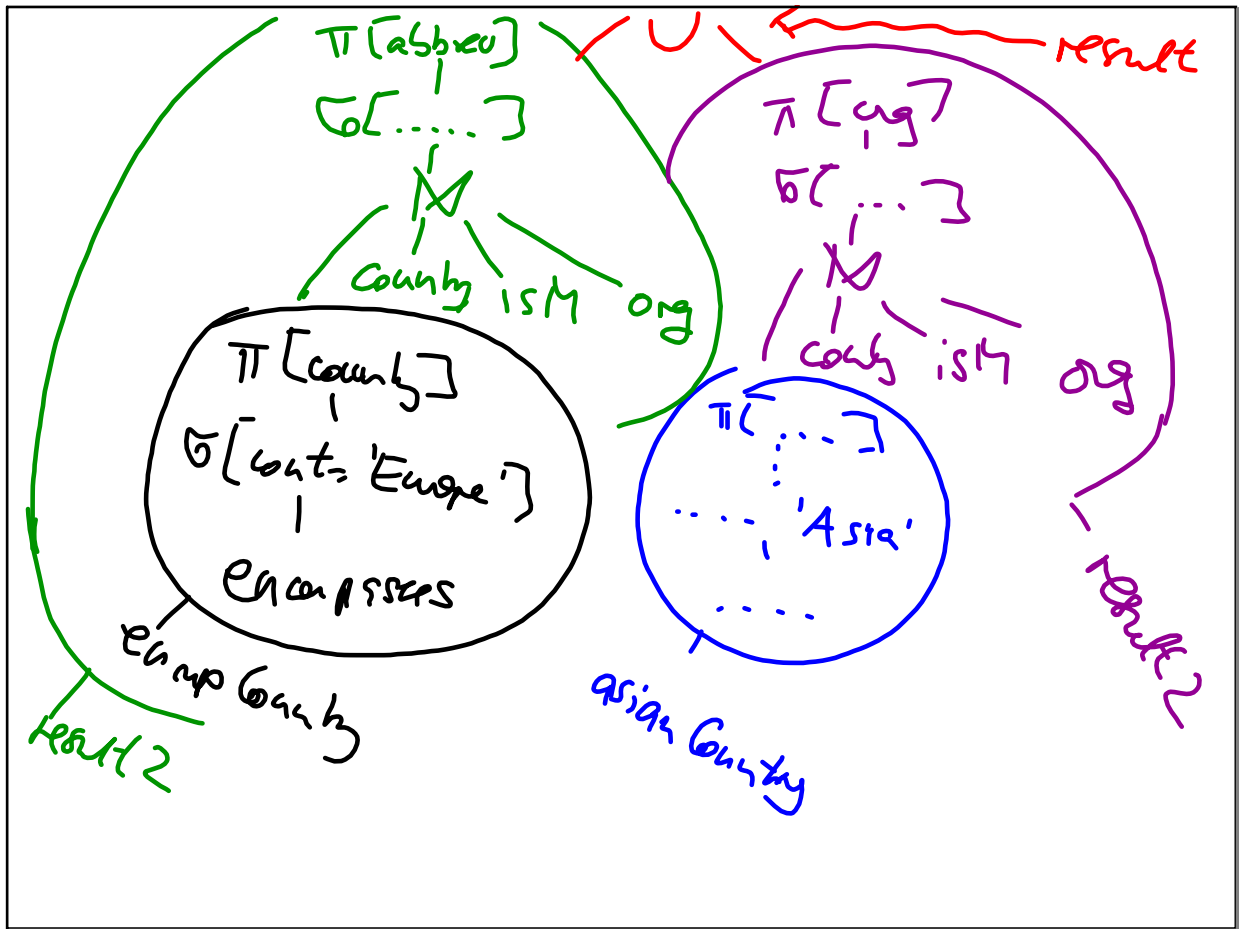
S&L: views (cf. SL 543 :)

```
CREATE VIEW europacountry AS
(SELECT country
FROM edcountries
WHERE continent = 'Europe')
    asiancountry
```

```
CREATE VIEW result1 AS
SELECT o.organization
FROM edcountries e, country i, member, organization
WHERE e.country = c.country = i.country = o.country
AND i.organization = o.organization
AND c.city = o.city
AND c.province = o.province
```

```
CREATE VIEW result
AS ((SELECT * from result1)
UNION
(SELECT * from result2))
```

Mai 13-10:21



Mai 13-10:23

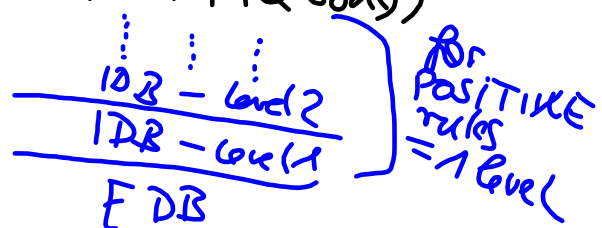
Slide 542: EDB, IDB

Σ EDB: predicates of the DB, like
 country, org, isMember
 (used only in the rule bodies)

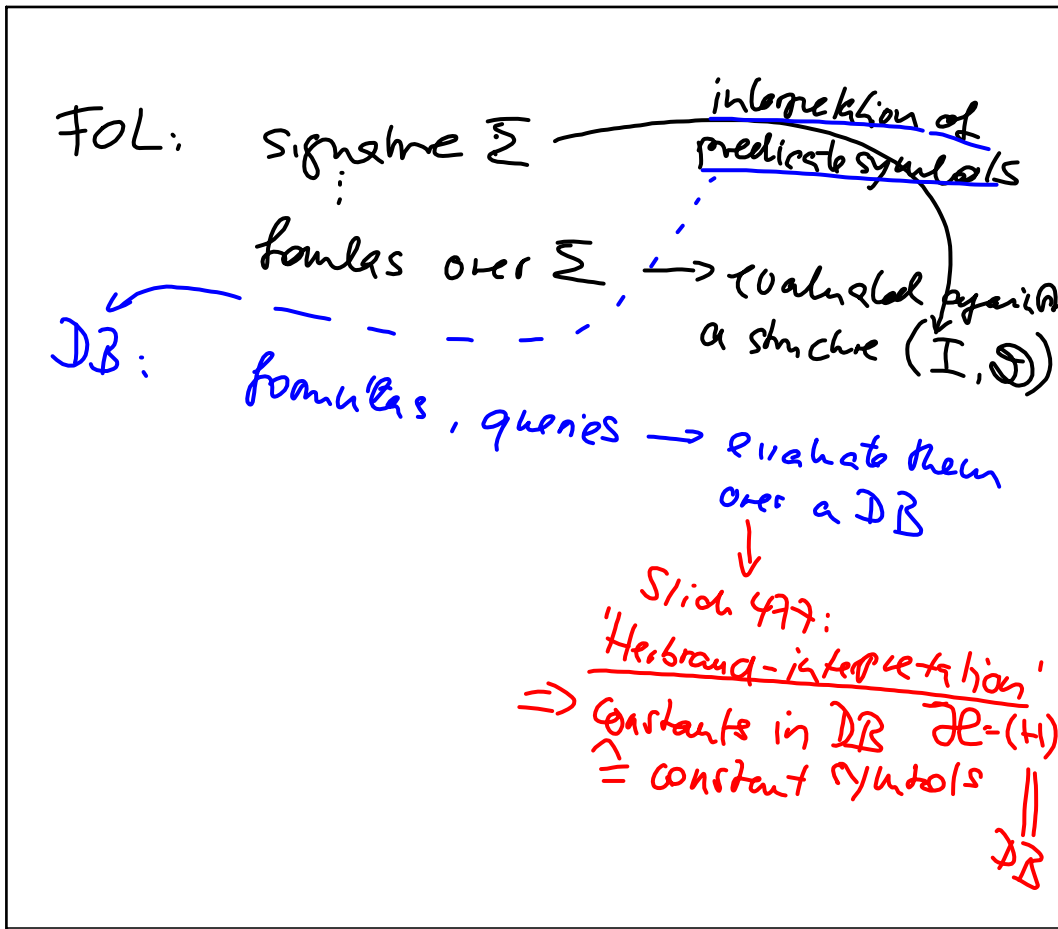
logical signature

DEFINED
 Σ IDB: predicates in the head of the rules
 (maybe USED also in the body)

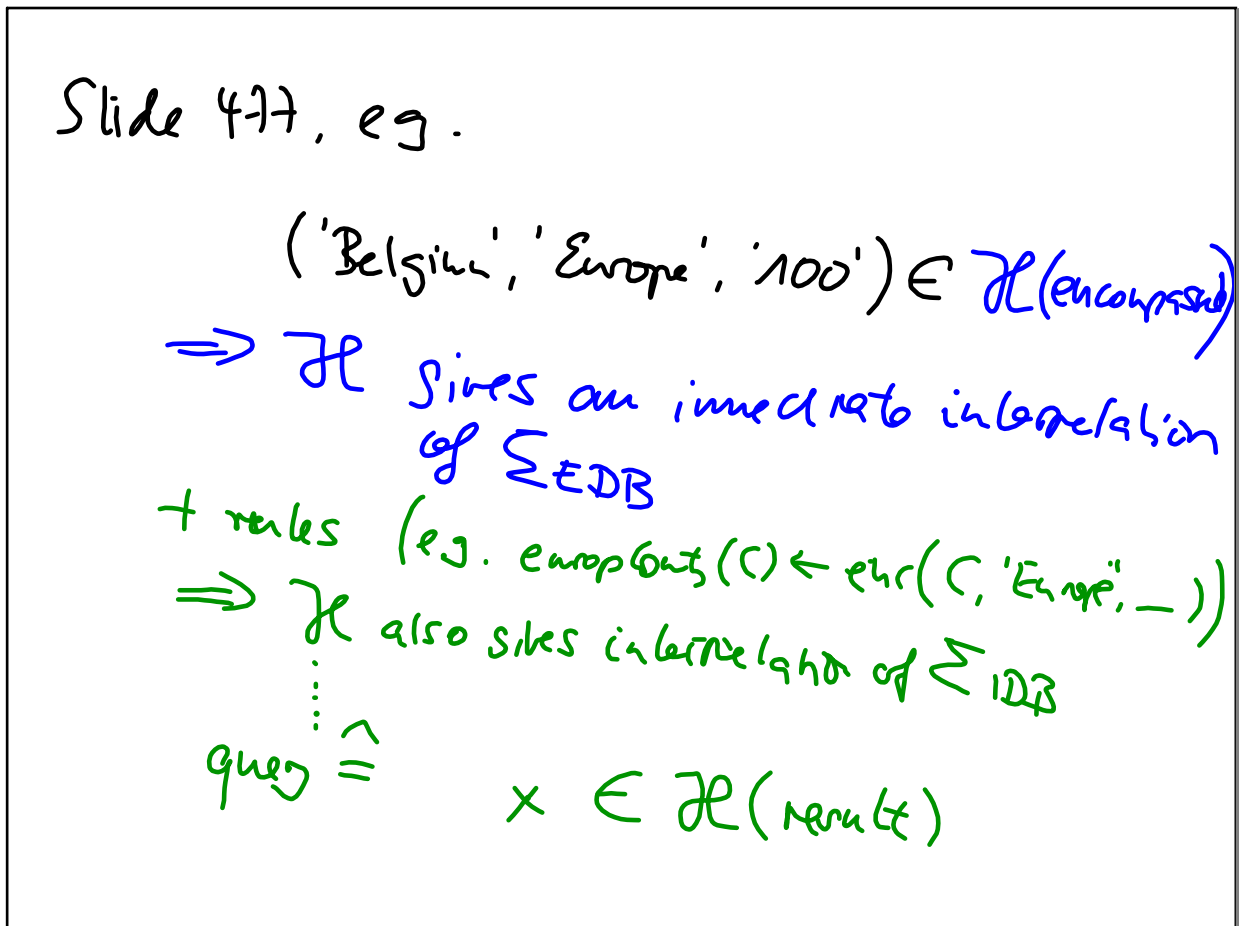
signature hierarchy:



Mai 13-10:35



Mai 13-10:41



Mai 13-10:47

"Substitution" Sp 504

Formula with free variable

$$p(x, y)$$

FOL before wrt. $\mathcal{D} = (I, \mathcal{D}) \rightarrow$ variable assignment
 $\beta = \{x/alice, y/bob\}$
 $\mathcal{D} \models_{\beta} p(x, y) \quad \beta: var \rightarrow \mathcal{D}$

\mathcal{D} : Herbrand domain \rightarrow do not map to \mathcal{D} but to TERMS

\Rightarrow Substitution: Formula \rightarrow Formula

$$\sigma = \{x \rightarrow alice, y \rightarrow bob\}$$

↑
Terms

Mai 13-10:54

Example

$\mathcal{X} = \text{Mondic}$

rule:

$$\text{encaps}(C) :- \text{encaps}(C, \text{Europe}, X)$$

head body

Context β : $C \mapsto 'B'$
 $X \mapsto '100'$

$$\mathcal{X} \models \beta(\text{body}) \quad \in \mathcal{H}$$

↑
encaps('B', 'Europe', 100)

\hookrightarrow "dente" $\beta[\text{head}]$

$$= \text{encaps}('B')$$

so $\{\beta(\text{head}) : \beta$ is a grd subst. and $\beta(\text{body}) \in \mathcal{X}\}$

$$= \{\text{encaps}('B'), \text{encaps}('D'), \dots\}$$

Mai 13-11:11

Example:

Tehe Mondial + the mapna
from Slide 543

\Rightarrow minimisit $T_P \subseteq R$ (headquarters?)
intended result
 R is a Herbrand interpretation
i.e. a set of ground facts

Consider

$R \cup \{ \text{expensive(AUS)} \} \models P$
is consistent with P ,
but has no reason in P
minimal set "it is not supported"

of facts that can be derived from P

\Rightarrow MINIMAL MODEL of P

\Rightarrow built-in closed world
assumption

Mai 13-11:26

Mai 13-11:31