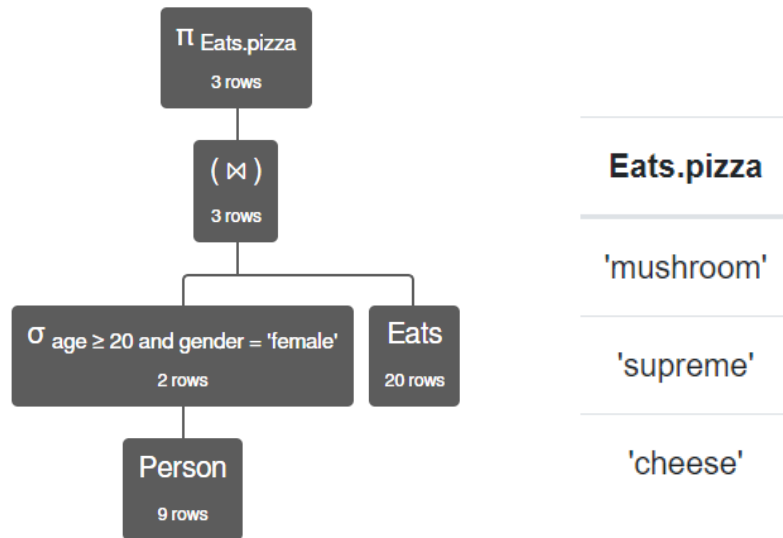


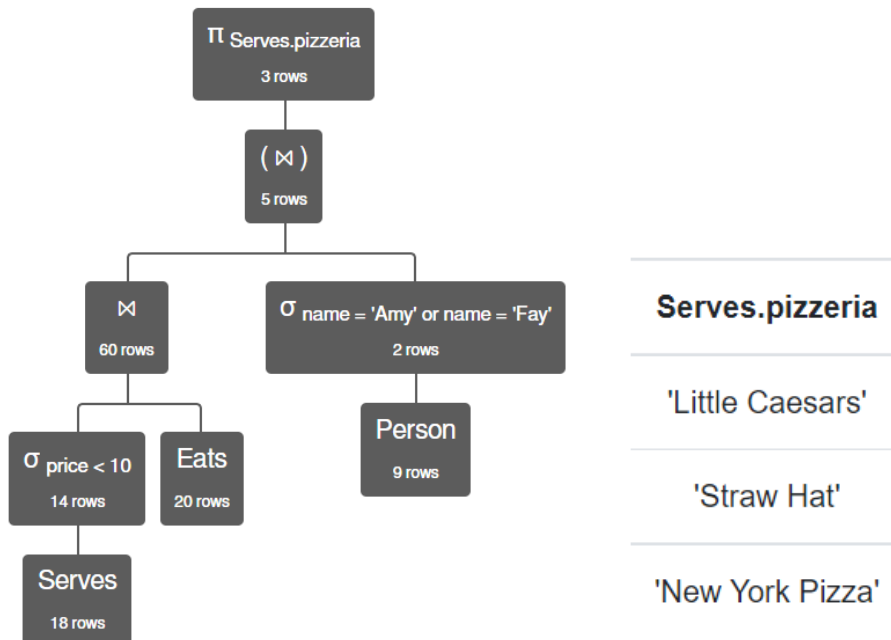
1. List all pizzas that were ordered by at least one girl of age 20 or above.

- $\pi \text{ Eats.pizza } (\sigma \text{ age} \geq 20 \wedge \text{gender} = \text{'female'} \text{ (Person)} \bowtie \text{Eats})$



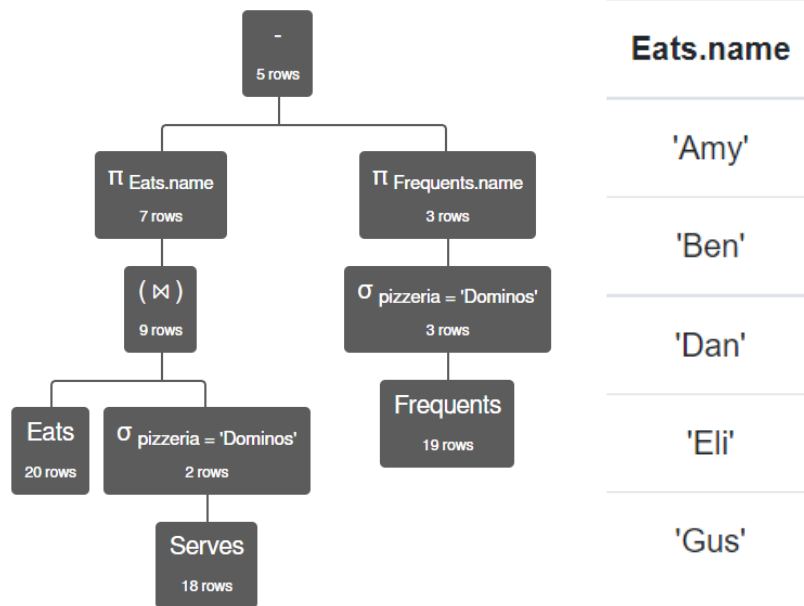
2. Find all pizzeria's that serve pizzas which were ordered by Amy or Fay (or both) and are cheaper than \$10.

- $\pi \text{ Serves.pizzeria } (\sigma \text{ price} < 10 \text{ (Serves)} \bowtie \text{Eats} \bowtie \sigma \text{ name} = \text{'Amy'} \vee \text{ name} = \text{'Fay'} \text{ (Person)})$



- List the names of all people that ordered at least one pizza that is served by Dominos, but they haven't visited Dominos.

- $\pi \text{ Eats.name (Eats } \bowtie \sigma \text{ pizzeria='Dominos' (Serves)) - } \pi \text{ Frequents.name (} \sigma \text{ pizzeria='Dominos' (Frequents))}$

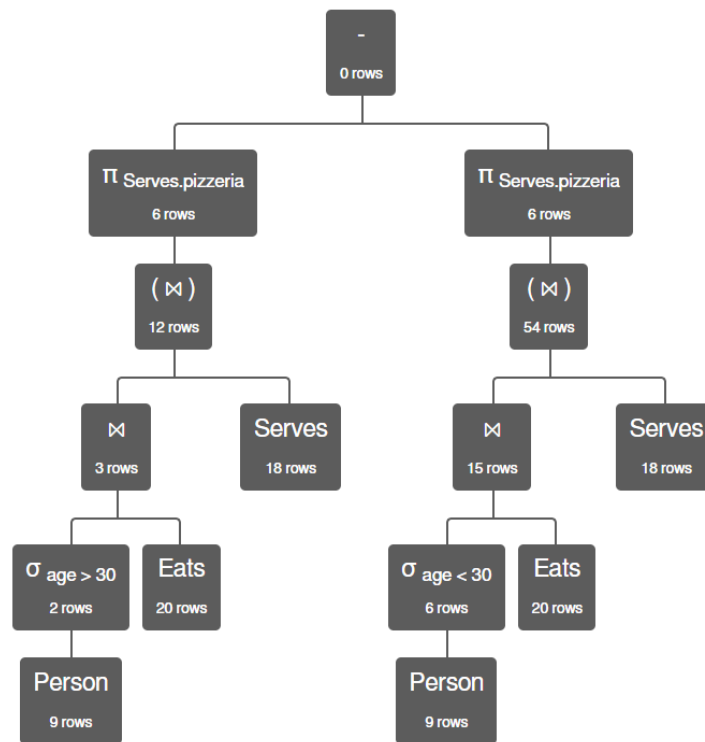


- List all pizzeria's that serve pizzas which were ordered **only** by people older than 30 years.

- $\pi \text{ Serves.pizzeria (} \sigma \text{ age>30 (Person) } \bowtie \text{ Eats } \bowtie \text{ Serves) - } \pi \text{ Serves.pizzeria (} \sigma \text{ age<30 (Person) } \bowtie \text{ Eats } \bowtie \text{ Serves)}$

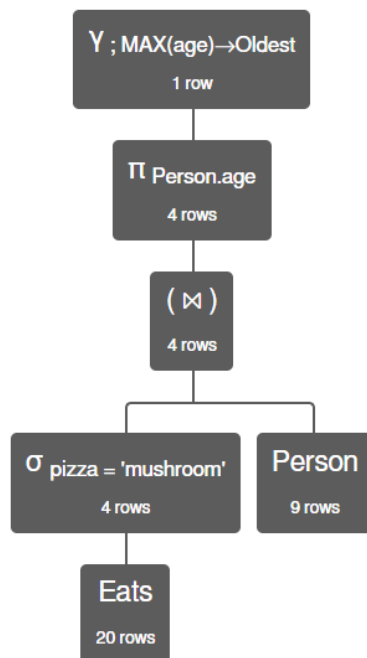
**There are no such pizzerias. I found the pizzerias that served customers older than 30 and the pizzerias that served customers younger than 30. The difference between the first and the second expression is 0, meaning there are no such pizzerias.*

****the screenshot of the result is on the next page.**



5. Find the age of the oldest person(s) that ordered mushroom pizza.

- $\gamma; \text{MAX}(\text{age}) \rightarrow \text{Oldest} (\pi \text{ Person.age } (\sigma \text{ pizza} = \text{'mushroom'} (\text{Eats}) \bowtie \text{Person}))$



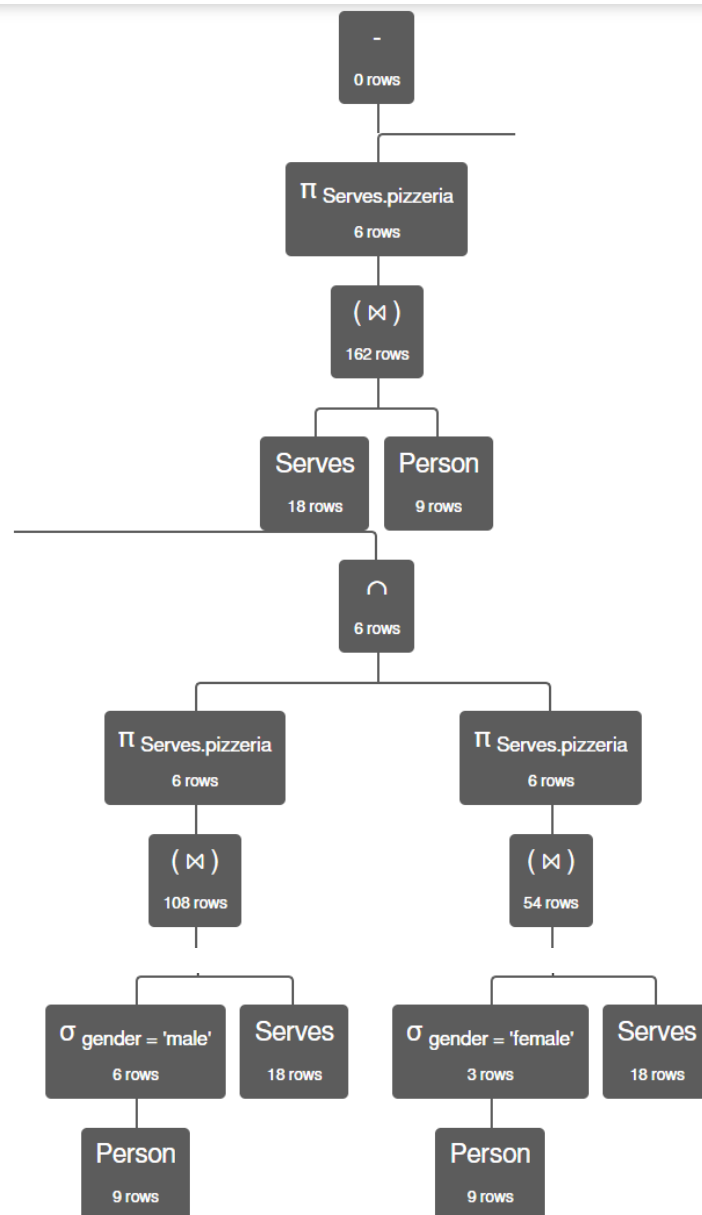
Oldest

24

6. Find the pizzeria's that are visited by girls only or by boys only.

- $\pi \text{ Serves.pizzeria (Serves } \bowtie \text{ Person) - } \pi \text{ Serves.pizzeria (} \sigma \text{ gender='male' (Person) } \bowtie \text{ Serves) } \cap \pi \text{ Serves.pizzeria (} \sigma \text{ gender='female' (Person) } \bowtie \text{ Serves)}$

**First, I found the intersection between pizzerias that served males and pizzerias that served females. Then I found the difference between all pizzerias and the intersection I mentioned. The result of the difference operation was 0, meaning there are no such pizzerias that serve only female or only male customers.*



7. Which pizzeria serves the cheapest pepperoni pizza. If there are more such pizzeria's, list all of them.

- $\gamma \text{ MIN}(\text{price}) \rightarrow \text{cheapest} (\sigma \text{ pizza} = \text{'pepperoni'} (\text{Serves}))$
- $\pi \text{ Serves.pizzeria} (\sigma \text{ price} = 8 \wedge \text{pizza} = \text{'pepperoni'} (\text{Serves}))$

**In the first relation I found the minimum price for pepperoni pizza in all pizzerias. In the second relation I listed all the pizzerias that sell pepperoni pizzas for that minimum price.*

