

Operators

σ	π
\cup	\cap
\times	$-$
\bowtie	\bowtie_{left}
\bowtie_{right}	\bowtie_{full}
\bowtie_{left}	\bowtie_{right}
ρ	\leftarrow

Editor

```
 $\sigma_{s1.bar = 'joe bar' \text{ and } s1.price > s2.price \text{ and } s1.beer = s2.beer} (\rho_{s1}(\text{sales}) \times \rho_{s2}(\text{sales}))$ 
```

```
 $\rho_{s1}(\text{sales}) \bowtie_{s1.bar = 'joe bar' \text{ and } s1.price > s2.price \text{ and } s1.beer = s2.beer} \rho_{s2}(\text{sales})$ 
```

```
// theta-join
```

```
beers  $\bowtie_{beers.bname=sales.beer \text{ and } sales.price < 5.0}$  sales
```

```
// theta-join with complex conditions
```

```
// set vs. bag semantics
```

```
 $\pi_{bname}(\text{beers} \bowtie_{beers.bname=sales.beer \text{ and } sales.price < 5.0} \text{sales})$ 
```

```
// natural join
```

```
create table goodbeer (beer char(20), rating real)
```

```
insert into goodbeer values ('sam adam', 5.0)
```

```
goodbeer  $\bowtie$  sales
```

```
goodbeer  $\times$  sales
```

Relations

- ▶ beers
- ▶ likes
- ▶ drinkers
- ▶ sales
- ▶ goodbeer