$\pi_{Viewer}(Seen) - \pi_{Viewer}(Movie - (Movie \bowtie Seen))$

# of Viewers

Viewers that have not watched a movie

$(\pi_{Viewer}(Seen) \times \pi_{Title}(Movie)) - Seen$

Set of Viewers

Set of Movies

Set of (Viewer, Movies) such as $\neg Seen(Viewer, Movie)$

Exc 3)

$\pi_{Viewer}(Seen) - \pi_{Viewer}((\pi_{Viewer}(Seen) \times \pi_{Title}(Movie)) - Seen)$

Set of Viewers

Set of Viewers Set of Films

Set of pairs (Viewer, Films)

Set of pairs (Viewer, Films) such that $\neg Seen(Viewer, Film)$

Q1 (algebra)

$\pi_{Viewer}(Seen) - \pi_{Viewer}(Seen - Likes)$

Set of Viewer

Set of Viewer that have seen but not liked a movie

Like all the movie they watch

Donc $Seen \Rightarrow Like$

Donc

- $\pi_{Viewer}(Seen) - \pi_{Viewer}(Seen - Likes)$
- $\left(\exists m \; Seen(x_{Viewer}, m)\right) \wedge \left(\forall m \; \neg Seen(x_{Viewer}, m) \vee Likes(x_{Viewer}, m)\right)$

x_{Viewer} est un Viewer

Si il a vu un film, il l'a liké

Q2 (algebra & calculus)

$$\Pi_{Producer}\left(Produced \bowtie_{Produced.Title = Title} \left(\Pi_{Title}(Movie) - \Pi_{Title}(Cinema)\right)\right)$$

Set of films without a cinema

Set of Producer that have a film with no cinema

Q3 (algebra)

Set of Producers

$$\Pi_{Producer}(Producer) - \Pi_{Producer}\left(Produced = Seen\right)$$

Q4 (algebra & calculus)

Set of pair (Producer, Film) such that producer have produced film but not seen it

- $\left(\exists m\ Produced(x_p, m)\right) \wedge \left(\forall m.\ \neg Produced(x, m) \vee Seen(x, m)\right)$

x est un producteur

si x a produit un film on alors il l'a vu