Gadget for variable $x_1$ (four clauses)
Part of gadget for clause 1

Gadget for variable $x_1$ (four clauses)
\( \overline{x}_1 \lor x_2 \lor \overline{x}_3 \)
\( \bar{x}_1 \lor x_2 \lor \bar{x}_3 \)
The Universe of elements $U$
A set $\mathcal{S}$ of subsets of $U$
An exact cover of $\mathcal{S}$
A set $\mathcal{S}$ of subsets of $U$
A set $S'$ of subsets of $U$ with no exact cover