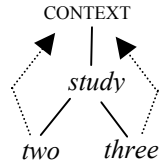
THE THREE INTERPRETATIONS OF THE SENTENCE
Two students studied three theorems

1



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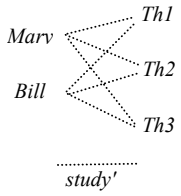
There are two students (Mary and Bill) each of which studied the same three theorems (Th1, Th2 and Th3).

$\exists_{x1}\exists_{x2}\ \exists_{y1}\exists_{y2}\exists_{y3}$
$[x1\neq x2 \wedge y1\neq y2\neq y3 \wedge$
$\forall_x [(x = x1 \vee x = x2) \rightarrow \text{student'}(x)] \wedge$
$\forall_y [(y=y1 \vee y=y2 \vee y=y3) \rightarrow \text{theorem'}(y)] \wedge$
$\forall_x\forall_y [((x=x1 \vee x=x2) \wedge (y=y1 \vee y=y2 \vee y=y3)) \rightarrow \text{study'}(x,y)]]$



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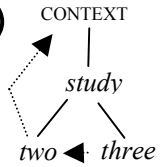

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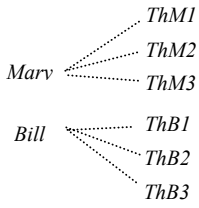
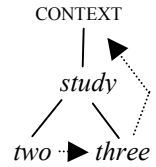
There are two students (Mary and Bill). Each student chooses three theorems and studies them.

$\exists_{x1}\exists_{x2}\ [x1\neq x2 \wedge$
$\forall_x [(x=x1 \vee x=x2) \rightarrow \text{student'}(x)] \wedge$
$\forall_x [(x=x1 \vee x=x2)) \rightarrow$
$\exists_{y1}\exists_{y2}\exists_{y3} [y1\neq y2\neq y3 \wedge$
$\forall_y [(y=y1 \vee y=y2 \vee y=y3) \rightarrow \text{theorem'}(y)] \wedge$
$\forall_y [(y=y1 \vee y=y2 \vee y=y3) \rightarrow \text{study'}(x, y)]]]]$



3



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There are three theorems (Th1, Th2 and Th3) and for each theorem there are two students, possibly different, who study it.

$\exists_{y1}\exists_{y2}\exists_{y3}\ [y1\neq y2\neq y3 \wedge$
$\forall_y [(y=y1 \vee y=y2 \vee y=y3) \rightarrow \text{theorem'}(y)] \wedge$
$\forall_y [(y=y1 \vee y=y2 \vee y=y3) \rightarrow$
$\exists_{x1}\exists_{x2} [x1\neq x2 \wedge$
$\forall_x [(x = x1 \vee x = x2) \rightarrow \text{student'}(x)] \wedge$
$\forall_x [(x = x1 \vee x = x2) \rightarrow \text{study'}(x, y)]]]]$