After Klausur

Klauselmenge

$$F = \neg(\exists y.\ \forall x.\ P(x,y) \rightarrow \forall x.\ \exists y.\ P(x,y)) \rightarrow KM$$

$A \rightarrow B \equiv \neg A \wedge B$

$$= \neg(\neg(\exists y.\ \forall x.\ P(x,y)) \vee \forall x.\ \exists y.\ P(x,y))$$

$$= \exists y.\ \forall x.\ P(x,y) \wedge \neg(\forall x.\ \exists y.\ P(x,y))$$ De. Morgan

$$= \exists y.\ \forall x.\ P(x,y) \wedge \neg\forall x\ \exists y.\ P(x,y)$$

$$= \exists y.\ \forall x.\ P(x,y) \wedge \exists x.\ \neg\exists y.\ P(x,y)$$

$$= \underline{\qquad\qquad} \wedge \exists x.\ \forall y.\ \neg P(x,y)$$

$$= \underline{\qquad\qquad} \wedge \exists x'.\ \forall y'.\ \neg P(x',y')$$

$$= \exists y.\ \forall x.\ \exists x'.\ \forall y'.\ (P(x,y) \wedge \neg P(x',y'))$$

$$= \forall x.\ \exists x'\ \forall y'\ (P(x,a) \wedge \neg P(x',y'))$$

$$= \forall x.\ \forall y'\ (P(x,a) \wedge \neg P(f(x),y'))$$

$$F = \neg(\exists y.\ \forall x.\ P(x,y) \rightarrow \forall x.\ \exists y.\ P(x,y))$$

$$= \neg(\neg(\exists y.\ \forall x.\ P(x,y) \vee \forall x.\ \exists y.\ P(x,y)))$$

$$= \exists y.\ \forall x.\ P(x,y) \wedge \neg\forall x.\ \exists y.\ P(x,y)$$

$$= \exists y.\ \forall x\ P(x,y) \wedge \exists x'.\ \forall y'.\ \neg P(x',y')$$

$$= \exists y.\ \forall x.\ \exists x'.\ \forall y'.\ (P(x,y) \wedge \neg P(x',y'))$$

$\forall x.\ \exists x'.\ \forall y'\ (P(x,a) \wedge \neg P(x',y'))$

$\forall x.\ \forall y'\ (P(x,a) \wedge \neg P(f(x),y'))$

$\{P(x,a)\}\ \{\neg P(f(x),y')\}$