

Identity Theory Jigsaw Lesson
Work Group: At Most

I. Translation key:

b: Berkeley; d: Descartes; h: Hume; k: Kant; n: Nietzsche
Ex: x is an empiricist; Ix: x is an idealist; Px: x is a philosopher; Rx: x is a rationalist
Lxy: x likes y; Mxy: x is read more widely than y; Pxy: x plays billiards with y; Rxy: x respects
y; Wxy: x wrote y
Lxyz: x likes y better than z

II. Examine the translations below, which use the key in I. Note that ‘at most’ statements make no existential commitments.

1. Nietzsche respects at most one philosopher.

$$(\forall x)(\forall y)[(Px \cdot Rnx \cdot Py \cdot Rny) \supset x=y]$$

2. Nietzsche respects at most two philosophers.

$$(\forall x)(\forall y)(\forall z)[(Px \cdot Rnx \cdot Py \cdot Rny \cdot Pz \cdot Rnz) \supset (x=y \vee x=z \vee y=z)]$$

3. Kant likes at most two empiricists better than Hume.

$$(\forall x)(\forall y)(\forall z)[(Ex \cdot Lkxh \cdot Ey \cdot Lkyh \cdot Ez \cdot Lkzh) \supset (x=y \vee x=z \vee y=z)]$$

4. At most one idealist plays billiards with some rationalist.

$$(\forall x)(\forall y)\{Ix \cdot (\exists z)(Rz \cdot Pxz) \cdot Iy \cdot (\exists z)(Rz \cdot Pyz)\} \supset x=y\}$$

5. At most two rationalists wrote a book more widely read than every book written by Hume.

$$(\forall x)(\forall y)(\forall z)\{\{Rx \cdot (\exists w)[Bw \cdot Wxw \cdot (\forall z)(Bz \cdot Whz) \supset Mwz] \cdot Ry \cdot (\exists w)[Bw \cdot Wyw \cdot (\forall z)(Bz \cdot Whz) \supset Mwz] \cdot Rz \cdot (\exists w)[Bw \cdot Wzw \cdot (\forall z)(Bz \cdot Whz) \supset Mwz]\} \supset (x=y \vee x=z \vee y=z)\}$$

III. Try these, using the key in I.

6. At most one philosopher is both an empiricist and a rationalist.

7. Berkeley respects at most two philosophers.

8. Some empiricists like Descartes but at most two.