Property modifiers

Property modifiers are functions of type $((o\iota)_{\tau\omega}(o\iota)_{\tau\omega})$; they associate a given root property with a new, modified property.

Here is the basic taxonomy of property modifiers.

Intersective. "If a is a round peg, then a is round and a is a peg".

$$[[M_iP]_{wt} a] \models [M^*_{wt} a] \land [P_{wt} a].$$

$$\forall w \forall t [[M_iP]_{wt} = [M^*_{wt} \cap P_{wt}]]$$

Necessarily, i.e. in all worlds and times, the set of round pegs equals to the intersection of the sets of round objects and pegs.

Subsective. "If a is a skilful surgeon, then a is a surgeon."

$$[[M_s P]_{wt} a] \models [P_{wt} a].$$
$$\forall w \forall t [[M_s P]_{wt} \subseteq P_{wt}]$$

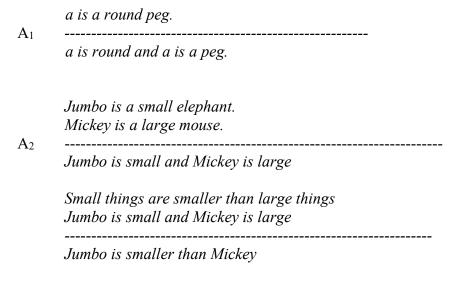
Necessarily, i.e. in all worlds and times, the set of skillful surgeons is a subset of the set of surgeons.

Privative. "If a is a *forged* banknote, then a is not a banknote".

$$[[M_p P]_{wt} \ a] \models \neg [P_{wt} \ a].$$
$$\forall w \forall t [[[M_p P]_{wt} \cap P_{wt}] = \varnothing]$$

Necessarily, i.e. in all worlds and times, the intersection of the set of forged banknotes and banknotes is empty.

Analyse the following arguments and decide (prove) which of them are valid:



Custom officers collected three forged passports
Custom officers collected five forged banknotes

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Custom officers collected eight forged things