Properties of Turing Machines

Turing machines have the following **closure properties**:

Turing-Decidable	Turing-Recognizable
union	union
concatenation	concatenation
star	star
complementation	--
intersection	intersection

Turing-recognizable languages are NOT closed under complements! Why? Knowing that the Halting Problem is not decidable, if we assume L being recognizable forces L^C to be recognizable, then we can build a decider for L (reject when L^C accepts), which is not possible.

This would make a great final exam question, wouldn't it?