Esoterica 1

Discrete Structures

4ᵗʰ day of February of the year of our Lord 2026

1. Fix a universe of discourse containing all living people, and consider the following.[1]

   · Every mathematician likes baristas.
   · Every barista knows how to make coffee.
   · Dan is a mathematician.
   · Anyone who likes baristas likes people who know how to make coffee.
   · Therefore, someone likes people know how to make coffee.

   Formalize this argument, and then prove the conclusion follows from the premises.

2. Fix a universe of discourse containing real and fictional people throughout human history and consider the following argument.

   · Only grand wizards have apprentices.
   · Not every wizard is grand.
   · Therefore, there is a wizard without an apprentice.

   Formalize this argument, and then prove the conclusion follows from the premises.

3. Fix a universe of discourse containing the ancient Greek scholars and consider this.

   · Every man is mortal.
   · Socrates is a man.
   · Therefore, someone is mortal.

   Formalize this argument, and then prove the conclusion follows from the premises.

[1] Whether you decide to disambiguate this argument using ∀ (as we did in class) or ∃, this argument is still valid (*i.e.,* the conclusion can be proven from the given premises).