CATEGORICAL STATEMENTS

Four Standard Forms of Categorical Statements:

d u
A: All S is P (all students are people)
d d
E: No S is P (no students are pelicans)
u u
I: Some S is P (some students are Polish)
u d
O: Some S is not P (some students are not pilots)

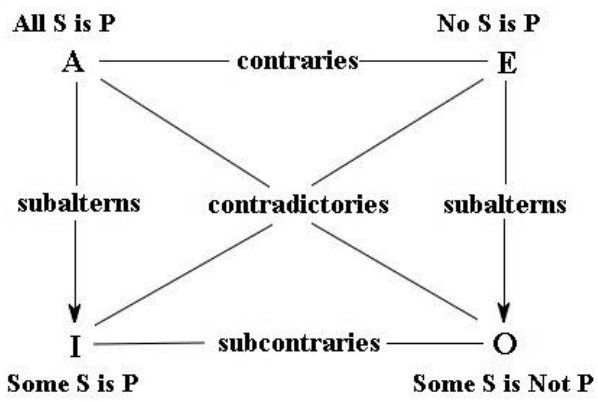
Definitions:

- Requirements: quantifier (all, no), subject term (S), copula (is, are), predicate term (P)
- Distribution: when what's said about S or P applies to all S or P
- Quality: affirmative (A, I) negative (E, O)
- Quantity: universal (A, E) particular (I, O)
- Existential import: S term is committed to existence in I and O forms.

Translating from Ordinary Language:

- Asterisk around unit class
- Add "thing" to adjectives (e.g. some apples are red things)
- Times, places, cases (e.g., some times are times when I am happy)

Square of Opposition:



Rules for Venn Diagrams:

- Shade areas where nothing is contained in the set.
- With "All S is P", everything in the S circle is also in the P circle , so you shade the portion of S that is outside of P.
- With "No S is P", nothing in S is also in P, so you shade the portion of S that overlaps with P.
- Place asterisk within areas where something is contained in the set.

Boolean Notation

- A: S~~P~~ = 0 (no members in the class of S and non-P)
- E: SP = 0 (no members in the class of S and P)
- I: SP ≠ 0 (at least one member in the class of S and P)
- O: S~~P~~ ≠ 0 (at least one member in class of S and non-P)

CATEGORICAL SYLLOGISMS

Syllogism Example:

1. All men are mortal (All men are mortal things)
2. Socrates is a man (All *Socrates* are men)
3. Socrates is mortal (All *Socrates* are mortal things)

Mood of Syllogism:

AAA, AII, EIO, IAI, OAO, etc.

Figure of Syllogism:

1st Fig.	2nd Fig.	3rd Fig.	4th Fig.
M - P	P - M	M - P	P - M
S - M	S - M	M - S	M - S
S - P	S - P	S - P	S - P

Fifteen Valid Syllogistic Forms:

- Fig. 1: AAA-1, EAE-1, AII-1, EIO-1
- Fig. 2: AEE-2, EAE-2, AOO-2, EIO-2
- Fig. 3: AII-3, IAI-3, EIO-3, OAO-3
- Fig. 4: AEE-4, IAI-4, EIO-4

Validity with Venn Diagram:

- Three circles for S P and M.
- When placement of X is ambiguous, put it on a line.
- Diagram all premises, see if diagram indicates conclusion.

Six Rules of Validity

1. *Three terms*: must have exactly 3 terms used unambiguously.
2. *One distributed middle term*: middle term must be distributed in at least one premise.
3. *Distributed term-distributed term*: term is distributed in conclusion iff it is distributed in premise.
4. *One affirmative premise:* must have at least one affirmative premise.
5. *Negative-negative*: negative conclusion iff negative premise.
6. *Particular-particular*: cannot conclude a particular from two universals