

It is crucially important in logic to know when two propositions contradict each other and when they do not. One of the most common reasons why debates and arguments fail to resolve a controversial issue and reveal the truth is a lack of clarity about what really contradicts what.

The conditions for contradiction are very simple, very stringent, and very limited. **Two propositions contradict each other only when the truth of either one necessarily means the falsity of the other, and the falsity of either one necessarily means the truth of the other. And this happens only between propositions that (a) have the same subject and predicate (b) and differ in both quantity and quality.**

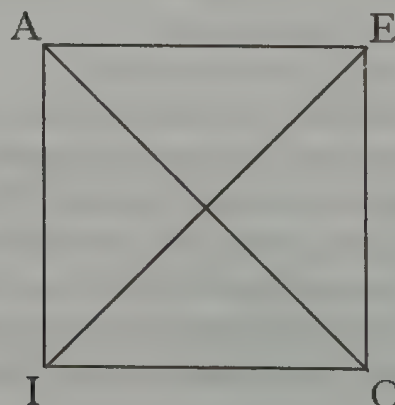
There are only two sets of contradictory propositions: (1) propositions with the form "All S is P" and "Some S is not P," and (2) propositions with the form "No S is P" and "Some S is P." *The only sets of propositions that contradict each other are an A and an O, or an E and an I, with the same subject and predicate.*

Exercises: Put each proposition into logical form and write its *contradictory* also in logical form.

1. "No man is a hero to his valet."
2. "Full many a flower is born to bloom unseen."
3. "Nobody doesn't like Sara Lee."
4. "A thing of beauty is a joy forever."
5. "It's a dirty bird that fouls its own nest."
6. "A fair face may be a foul bargain."
7. "Red sky in the morning, sailors take warning; red sky at night, sailor's delight."
8. "There's many a slip 'twixt the cup and the lip."
9. "A good conscience is your best pillow."
10. "None but the brave deserve the fair."
11. "Sometimes a man's gotta do what a man's gotta do."
12. "Not all mistakes are stupid ones."

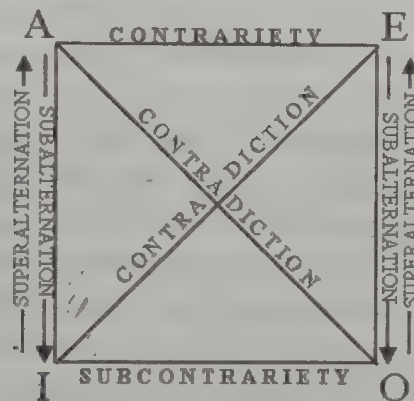
Section 2. The Square of Opposition

Which propositions contradict each other is made clear by the "Square of Opposition":



“Opposition” is a special, technical term in logic. It means **the relation between any two propositions that have the same subject and the same predicate but differ in quality or quantity or both**. Two propositions that do not have the same subject, or do not have the same predicate, are not in any kind of “opposition.” Opposition exists only between two propositions with the same subject and the same predicate.

There are four different kinds of opposition: contradiction, contrariety, subcontrariety, and subalternation/superalternation:



The most important kind of opposition is **contradiction**, the relation between opposed *A* and *O* propositions, or between opposed *E* and *I* propositions. (The *relation* is called “contradiction” and the two *propositions* are called “contradictories.”) This is the relation diagrammed by the two diagonal lines across the center of the Square. **Of two contradictories, if one is true the other is false and if one is false the other is true.** If “all lawyers are crooks” is true, “some lawyers are not crooks” is false, and if “all lawyers are crooks” is false, “some lawyers are non-crooks” is true. (Apologies to lawyers, but stock examples stick in memory.)

There are also three other kinds of opposition besides contradiction. The most important of these is **contrariety**. The only two propositions that are **contraries** are an *A* and an *E* in opposition (i.e., with the same subject and predicate). “All *S* is *P*” and “No *S* is *P*” are contraries.

Contraries cannot both be true, but they can both be false. If “All lawyers are crooks” is true, then “No lawyers are crooks” must be false, and if “No lawyers are crooks” is true, then “All lawyers are crooks” must be false. However, both propositions can be false, if some lawyers are crooks and some are not.

The practical application of the distinction between contraries and contradictories is this: **To refute an *A* or *E* proposition, you do not need to prove its contrary, only its contradictory.** You need to show only *some* counter examples, in fact only *one*, to refute a universal. An *A* proposition is an affirmative universal, and an *O* is sufficient to refute it. If someone says “All lawyers are crooks,” you have refuted him if you show that “some lawyers are not crooks.” You do not need to show that “No lawyers are crooks.” Similarly, an *I* proposition is sufficient to refute an *E*. If someone says “No lawyers are crooks,” you