

### 1.7.1. Truth and Validity Problems

“Kepler’s ‘law of velocities,’ which Newton proved to be incorrect, served as a guiding beacon to his investigation. From it he deduced the law of areas, which today we hold to be correct and call his second law of planetary motion. ...The mathematical reasoning was fallacious; never mind, the law of velocities used as a premise was also [false], but the conclusion has proved to be correct.”

Richard S. Westfall, **The Construction of Modern Science** (1971), pp. 8-9

For each of the following claims, state whether it is **true** or **false**. (*Use arguments A through D to help in deciding the answer.*)

(A)	(B)	(C)	(D)
1. Benjamin Franklin was born in Boston. 2. Benjamin Franklin was the first U.S. president. <hr/>	1. The Roman Colosseum was made of limestone and cement. 2. The Romans made cement from river sand or volcanic ash. <hr/>	1. Benjamin Franklin was born in Boston. 2. Benjamin Franklin was not the first U.S. president. <hr/>	1. The Roman Colosseum was made of limestone and cement. 2. The Romans made cement from river sand or volcanic ash. <hr/>
∴ The first U.S. president was born in Boston.	∴ The first U.S. president was born in Boston.	∴ The first U.S. president was born in Boston	∴ The first U.S. president was born in Westmoreland County, Virginia.

1. If an argument has a true conclusion, then the argument is valid.
2. If an argument has true premises and a true conclusion, then the argument valid.
3. A valid argument could have false premises.
4. If the premises of an argument are true, then the conclusion of that argument is true.
5. If the premises of a *valid* argument are true, then the conclusion of that argument is true.