Conclusion versus Argument
Direct Proof

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1. If the sun is shining, then we go swimming
2. the sun is shining
3. Therefore, we go swimming

Principle (Modus Ponens)

From p and p $\Rightarrow$ q, we can conclude q.

Argument versus conclusion

Is this a valid argument?

1. If $\sqrt{2} > 3/2$, then $2 > (3/2)^2$
2. $\sqrt{2} > 3/2$
3. Therefore we conclude that $2 > (3/2)^2$

The conclusion
Argument versus conclusion

Is it true that $2 > (3/2)^2$?

Argument versus conclusion
The problem

1. If $\sqrt{2} > 3/2$, then $2 > (3/2)^2$
2. $\sqrt{2} > 3/2$
3. Therefore we conclude that $2 > (3/2)^2$

   a false premise gives a false conclusion

   The conclusion is true when both (1) the premises are true, and (2) the argument is valid.