

# CLASSIFICATION: TRUE VS. FALSE AND POSITIVE VS. NEGATIVE

The Boy Who Cried Wolf

## Classification



- A shepherd boy gets bored tending the town's flock.
- To have some fun, he cries out, "Wolf!" even though no wolf is in sight.
- The villagers run to protect the flock, but then get really mad when they realize the boy was playing a joke on them.

*[Iterate previous paragraph N times.]*

- One night, the shepherd boy sees a real wolf approaching the flock
- and calls out, "Wolf!"
- The villagers refuse to be fooled again and stay in their houses.
- The hungry wolf turns the flock into lamb chops.

We make the following definitions:

- "Wolf" is a **positive class**.
- „No wolf" is a **negative class**



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### True Positive (TP):

- Reality: A wolf threatened.
- Shepherd said: "Wolf."
- Outcome: Shepherd is a hero.



Wolf

### False Positive (FP):

- Reality: No wolf threatened.
- Shepherd said: "Wolf."
- Outcome: Villagers are angry at shepherd for waking them up.



Wolf

### False Negative (FN):

- Reality: A wolf threatened.
- Shepherd said: "No wolf."
- Outcome: The wolf ate all the sheep.



No Wolf

### True Negative (TN):

- Reality: No wolf threatened.
- Shepherd said: "No wolf."
- Outcome: Everyone is fine.



No Wolf

2x2 confusion matrix with all possible outcomes

We make the following definitions:

- "Wolf" is a **positive class**.
- „No wolf" is a **negative class**