

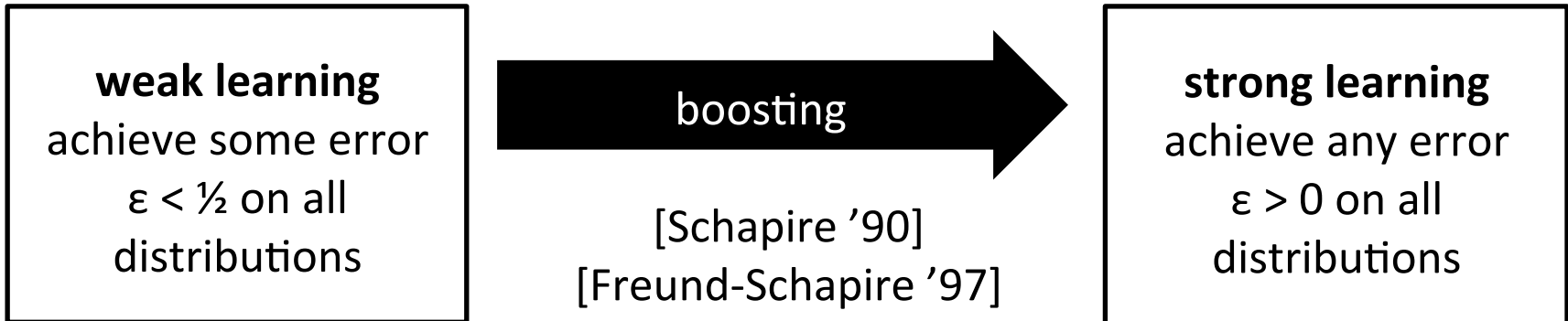
On Boosting Sparse Parities

Lev Reyzin

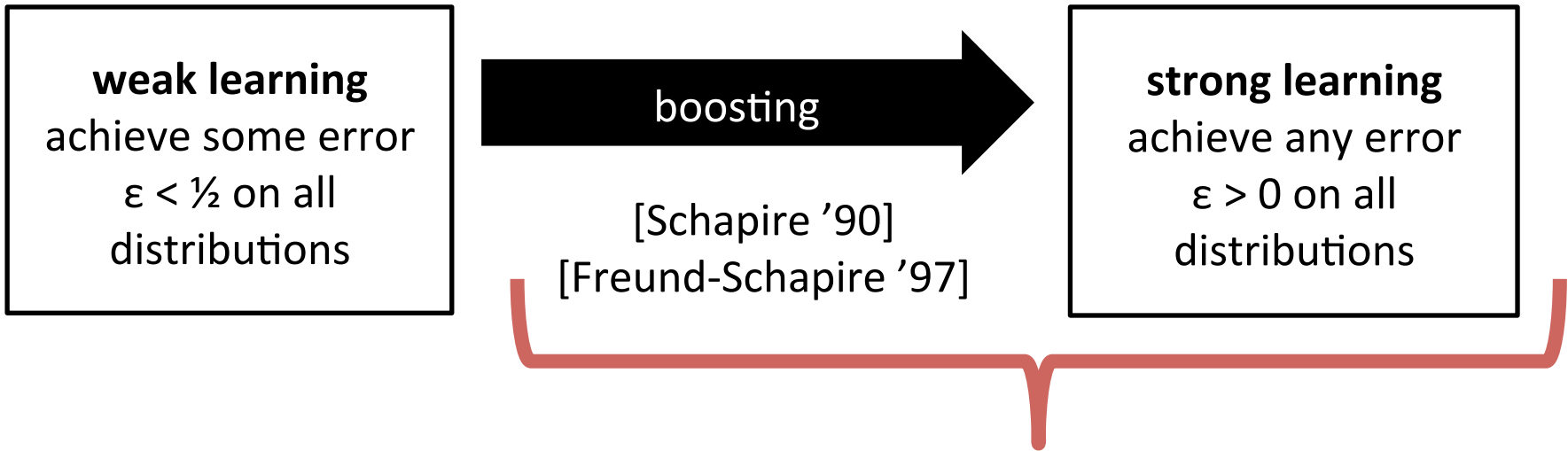
UIC

@ AAAI 2014

Boosting



Boosting



lots of work here

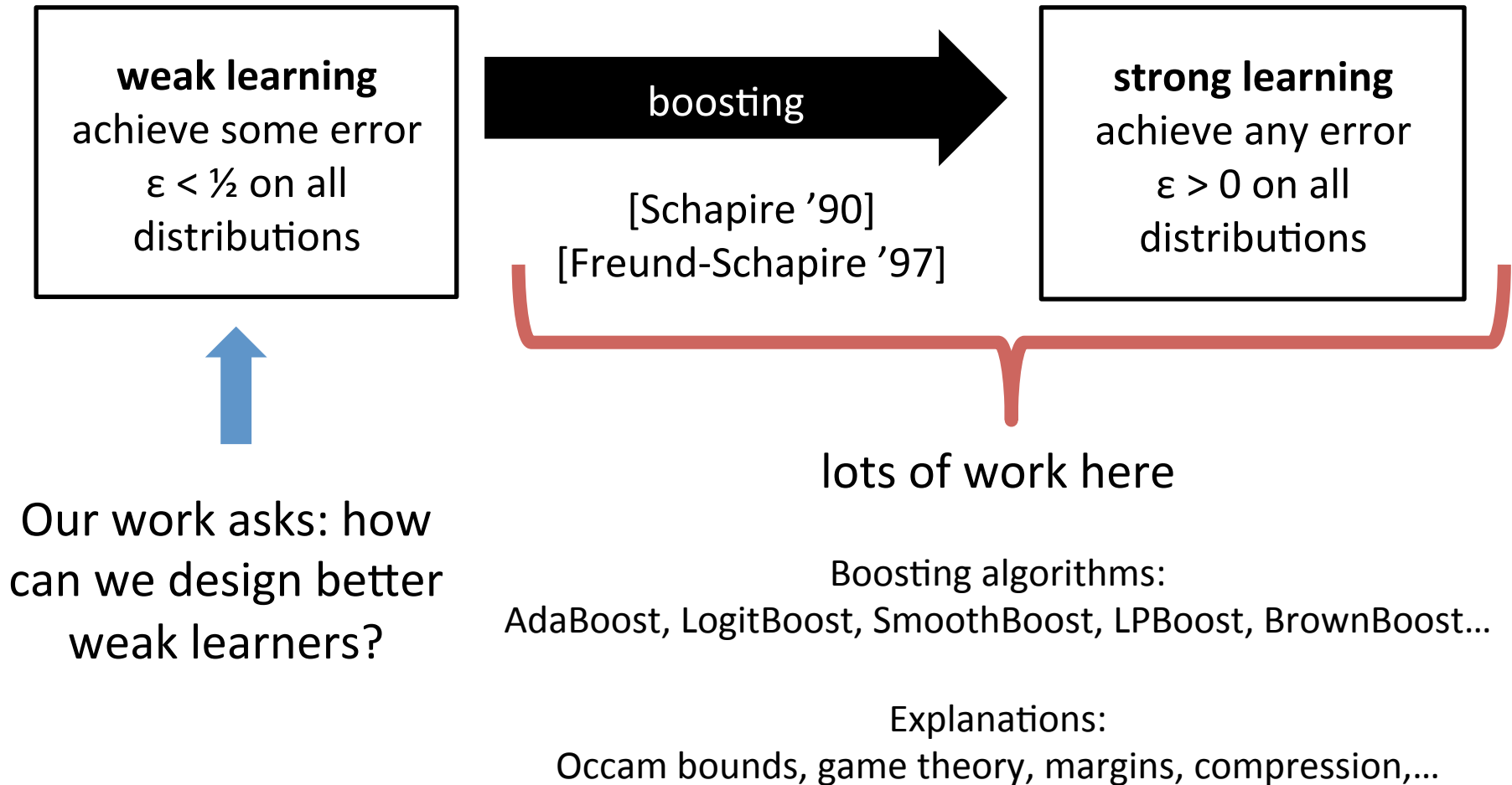
Boosting algorithms:

AdaBoost, LogitBoost, SmoothBoost, LPBoost, BrownBoost...

Explanations:

Occam bounds, game theory, margins, compression,...

Boosting



What do we want in a weak learner?

coverage

evaluability

error

diversity

simplicity

richness

optimizability

What do we want in a weak learner?

coverage

evaluability

error

Sparse parity functions
turn out to be a reasonable candidate
(in part due to recent advances).

diversity

And experimentally, they are very
competitive (see poster)!

simplicity

Suggests further study is worthwhile.

richness

optimizability

Main Open Problems

Better formalize a what makes a good weak learner.

Find better weak learners!

I'm not suggesting parities are the answer, just the beginning.