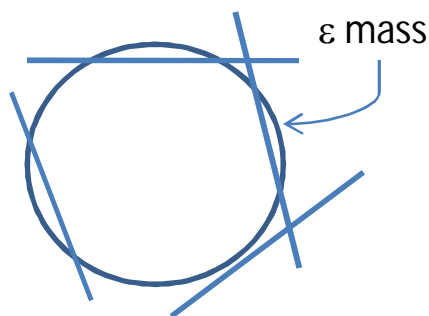


Asymptotic Active Learning

Nina Balcan, Eyal Even-Dar, Steve Hanneke, Michael Kearns, Yishay Mansour, Jenn Wortman

Label Cost	Type of Learning
Infinite	Unsupervised Learning
Inexpensive	Passive Supervised Learning
Finite but expensive	Active Learning

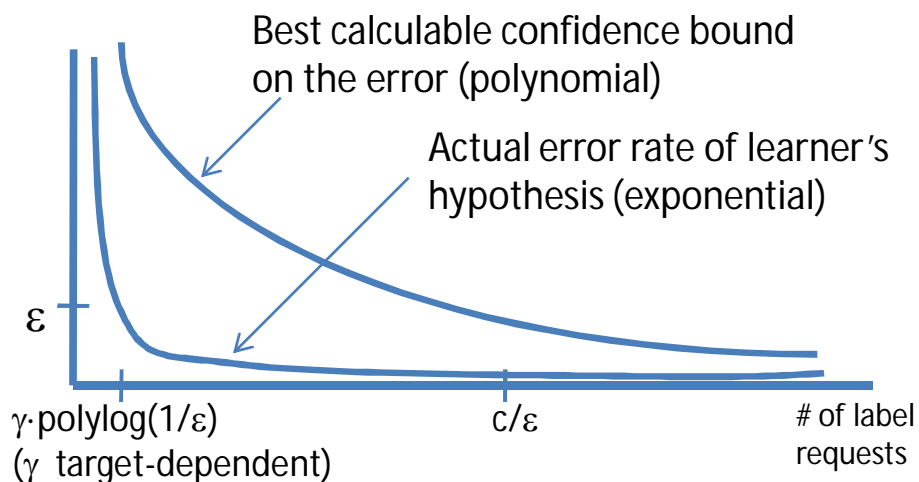
Dasgupta 05: Learning unbalanced linear separator, need $\Omega(1/\epsilon)$ queries to be confident have an ϵ -good hypothesis.



But $O(1/\epsilon)$ labels suffices for passive learning.

Conclusion: active learning doesn't help?
(Not necessarily the correct conclusion).

For many common hypothesis classes C , distributions D , and target functions f , the following occurs (for a good algorithm):



Conclusion: active learning typically *does* help, (though we often can't detect how much it helps based only on observable quantities).