## A Tiny Example

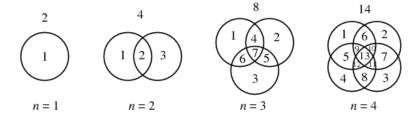
Andrew Mertz and William Slough

June 15, 2005

Suppose we have an (infinite) collection of sets  $\mathcal{F}$ . We define a shatter function  $\pi_{\mathcal{F}}(n)$ 

$$\pi_{\mathcal{F}}(n) = \max\{\# \text{ of atoms in boolean algebra generated by } S$$
 
$$\mid S \subset \mathcal{F} \text{ with } |S| = n\}$$

Example: Let  $\mathcal F$  consist of all discs on a plane.



$$\pi_{\mathcal{F}}(1) = 2$$
  $\pi_{\mathcal{F}}(2) = 4$   $\pi_{\mathcal{F}}(3) = 8$   $\pi_{\mathcal{F}}(4) = 14$