Taylor Earl

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CS 2130

* Sets
  + A list of things
  + Description
  + Rules/equations
  + Has to be well defined so you can decide what is or isn’t in the set
  + Need to be able to decide in finite time
    - s = {a, b, c , {d, e}}
      * a = s
      * b = s
      * d, e = s
      * d != s
* Common Sets
  + Z+ = {1, 2, 3, … }
  + Z
  + N
  + Q
  + R
  + { }
* Notation
  + Element/not an element
    - E or E (with dash in it)
  + Subset
    - C\_ or C\_ (with dash)
  + Null or empty is always a valid subset of a set
* Union
  + A = {c, a, t,}
  + B = {d, o, g]
  + A U B
    - {c, a, t, d, o, g,}
* Intersection
  + A = {a, b, c, d, e}
  + B = {a , e}
* Disjoint sets
  + A = {integers}
  + B = {alphabet}
* Union/Intersection on 3 sets
  + A = {alpha}
  + B = {integers}
  + C = {Address}
* Compliment
  + Whats not in your set
* Symmetric Difference
  + All of the stuff just in A, All of the stuff just in B, But not the intersection in the middle
* Operations
  + Commutative
    - A U B = B U A
  + Associative
    - A U (B U C) = (A U B) U C
  + Identity
    - A U A = A
  + Compliment
    - Compliment everything and get everything not in it
* Compliment
  + Everything that is A, and everything that isn’t in A = the whole set
* Properties of universal set
  + A U u = u
* Properties of empty set
* Proof of DeMorgan’s Law
  + A U B = A N B (Complimented)