

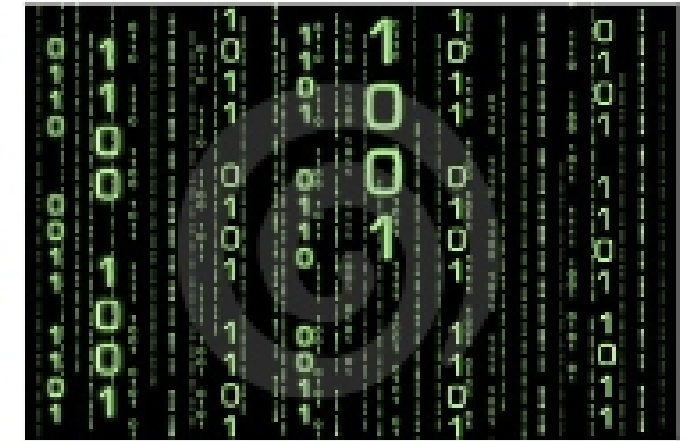
Seek and Ye shall Find

The continuum of computer “intelligence”

COS 116, Spring 2012

Adam Finkelstein

Recap: Binary Representation



Powers of 2

2^0	2^1	2^2	2^3	2^4	2^5	2^6	2^7	2^8	2^9	2^{10}
1	2	4	8	16	32	64	128	256	512	1024

$$2^{10} = 1024 \approx 10^3$$


Fact: Every integer can be uniquely represented as a sum of powers of 2.

Ex: $25 = 16 + 8 + 1$
 $= 1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$

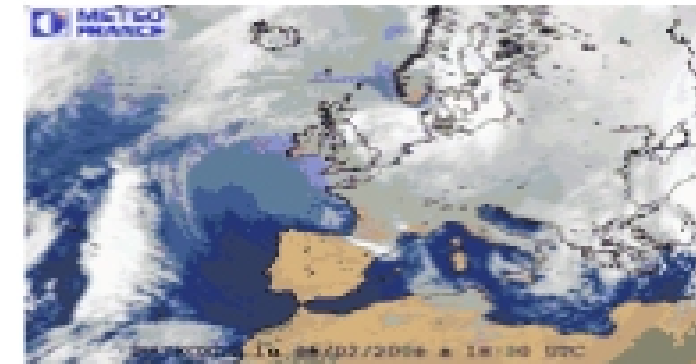
$$[25]_2 = 11001$$

Misconceptions about Computers

Just a calculator
on steroids



Weather Forecast



Just maintains large
amount of data



Airline Reservation System



Just does what the
programmer tells it



Yes, but ...