CS2100 DSA

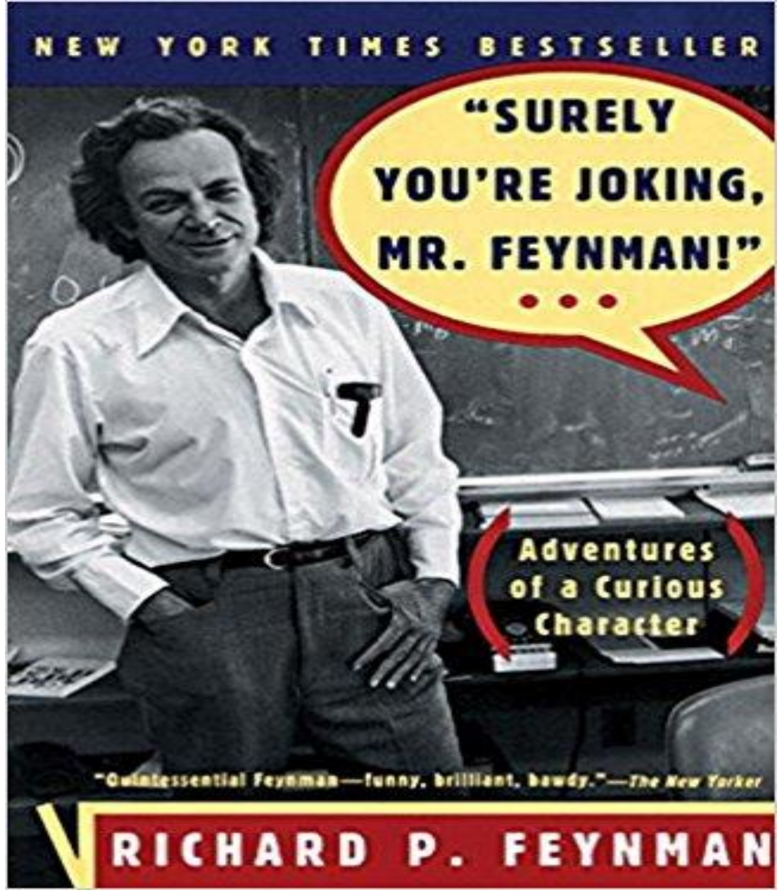
CS2120 DMT

CS 2130

CSO1

What makes a computer go?

…there was a book that started out with four pictures: first there was a wind-up toy; then there was an automobile; then there was a boy riding a bicycle; then there was something else. And underneath each picture, it said "What makes it go?"


NEW YORK TIMES BESTSELLER
"SURELY YOU'RE JOKING, MR. FEYNMAN!" …
Adventures of a Curious Character
"Quintessential Feynman—funny, brilliant, bawdy."—The New Yorker
RICHARD P. FEYNMAN

"What makes it go? Everything goes because the sun is shining."

“The toy goes because the spring is wound up”

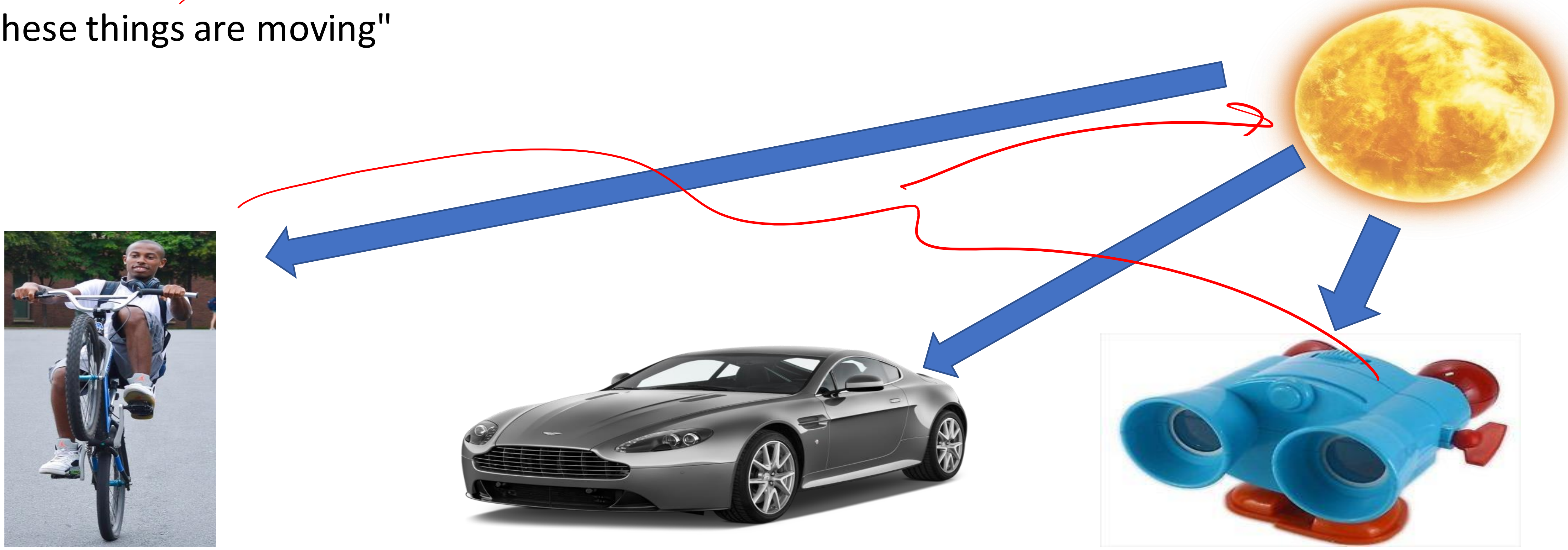
"How did the spring get would up“

"I wound it up"

"And how did you get moving?"

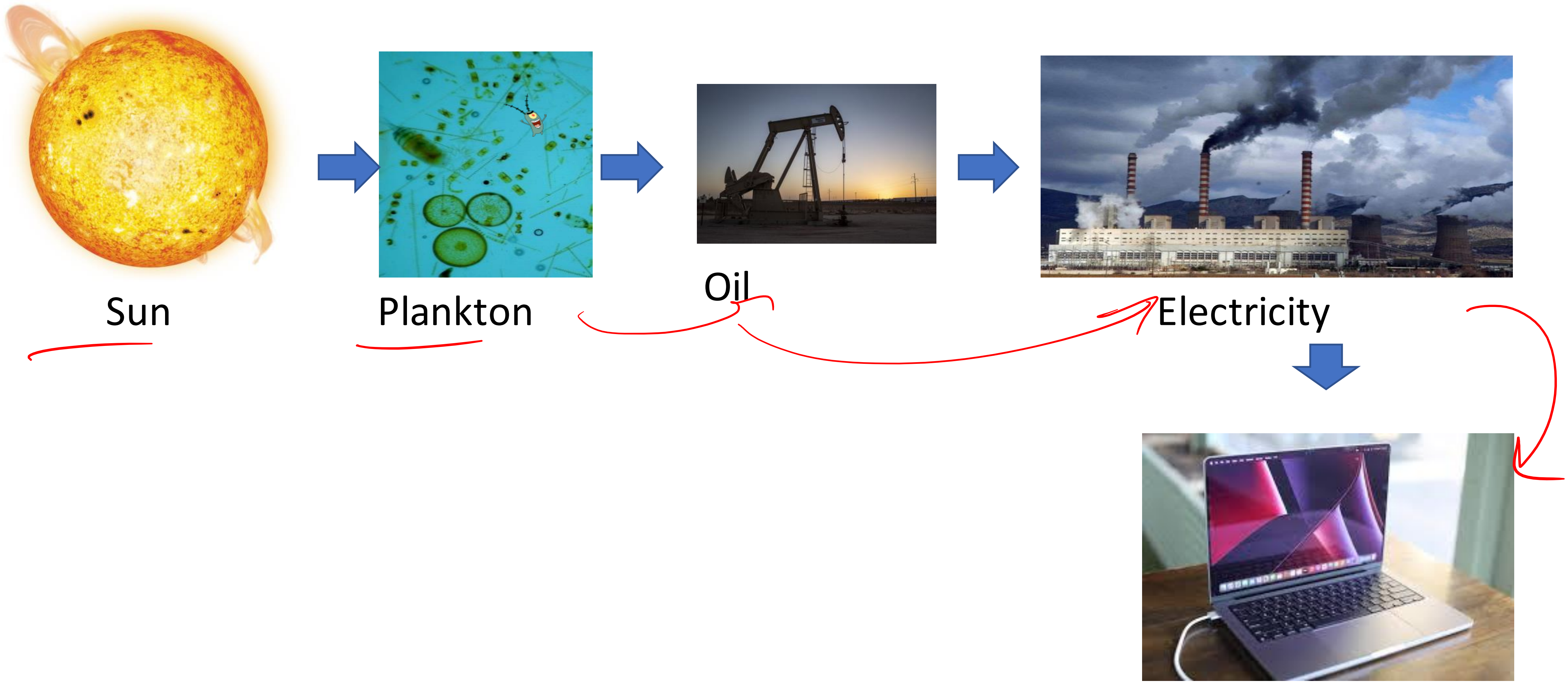
"From eating"

"And food grows only because the sun is shining. So it's because the sun is shining that all these things are moving"



What makes computers go?

One answer:



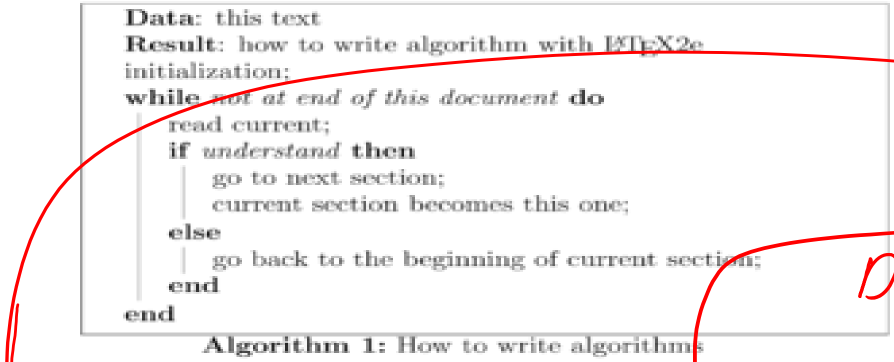
Sun

Plankton

Oil

Electricity

What makes computers go?



```
Data: this text
Result: how to write algorithm with LaTeX2e
initialization;
while not at end of this document do
    read current;
    if understand then
        go to next section;
        current section becomes this one;
    else
        go back to the beginning of current section;
    end
end
```

Algorithm 1: How to write algorithms

Algorithms

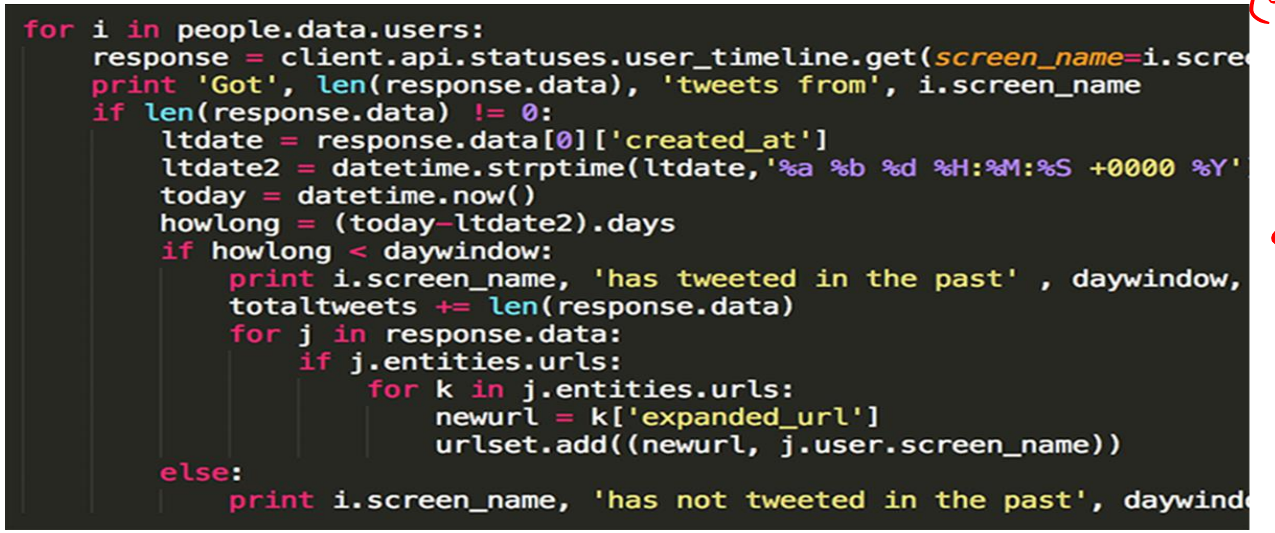
$$\frac{P, \quad P \Rightarrow Q}{Q}$$

Mathematics

2120

DSA1

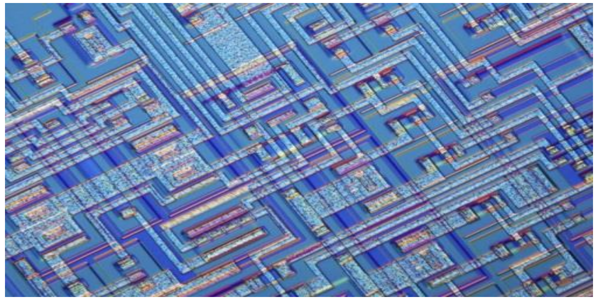
CS1110



```
for i in people.data.users:
    response = client.api.statuses.user_timeline.get(screen_name=i.scree
    print 'Got', len(response.data), 'tweets from', i.screen_name
    if len(response.data) != 0:
        ltdate = response.data[0]['created_at']
        ltdate2 = datetime.strptime(ltdate,'%a %b %d %H:%M:%S +0000 %Y')
        today = datetime.now()
        howlong = (today-ltdate2).days
        if howlong < daywindow:
            print i.screen_name, 'has tweeted in the past' , daywindow,
            totaltweets += len(response.data)
            for j in response.data:
                if j.entities.urls:
                    for k in j.entities.urls:
                        newurl = k['expanded_url']
                        urlset.add((newurl, j.user.screen_name))
    else:
        print i.screen_name, 'has not tweeted in the past', daywind
```

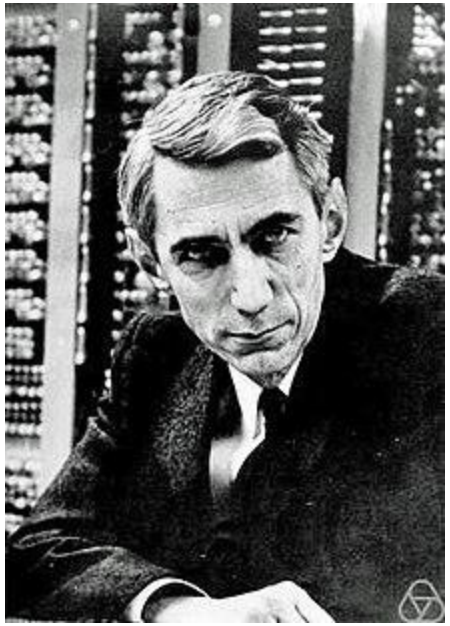
Programs

CSO1

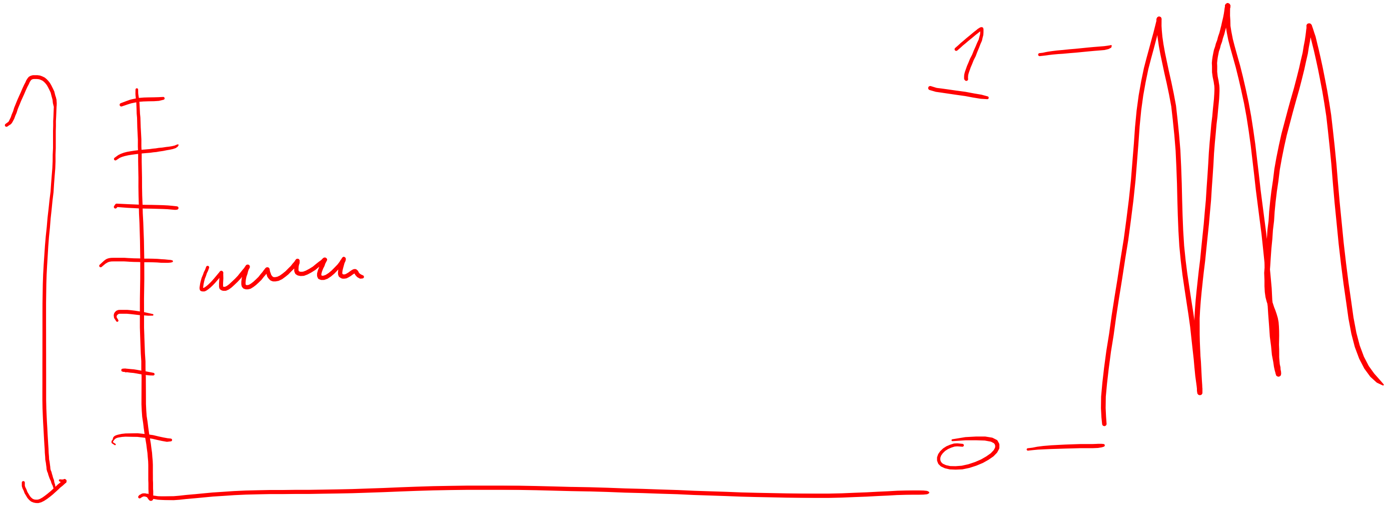


Transistors/memory

Claude Shannon | Information

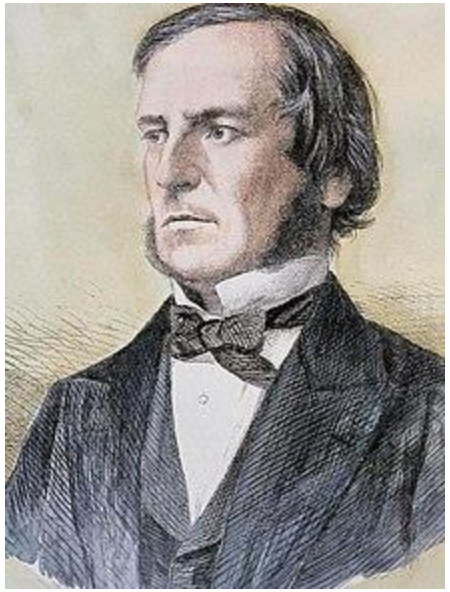


01



Conclusion: regardless, same amount of info per second for 2 levels, hardware is easier

George Boole | Boolean Algebra



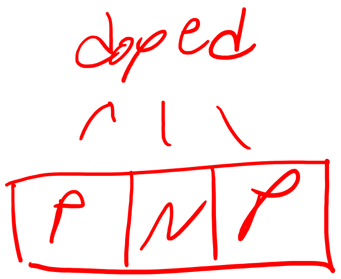
Boolean Algebra

True 1

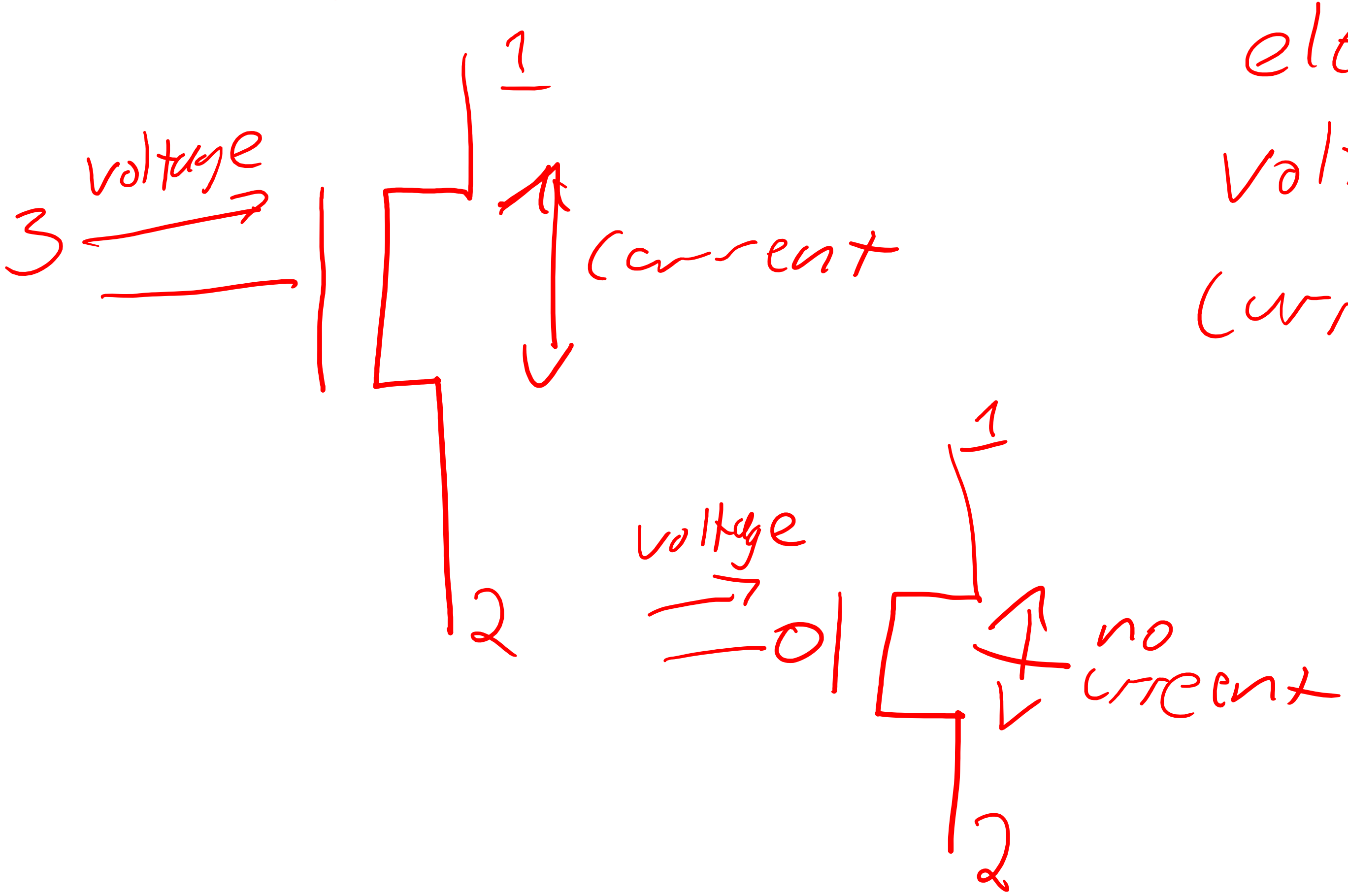
False 0

and	or	not
&&	||	!

Making a Device



Transistor

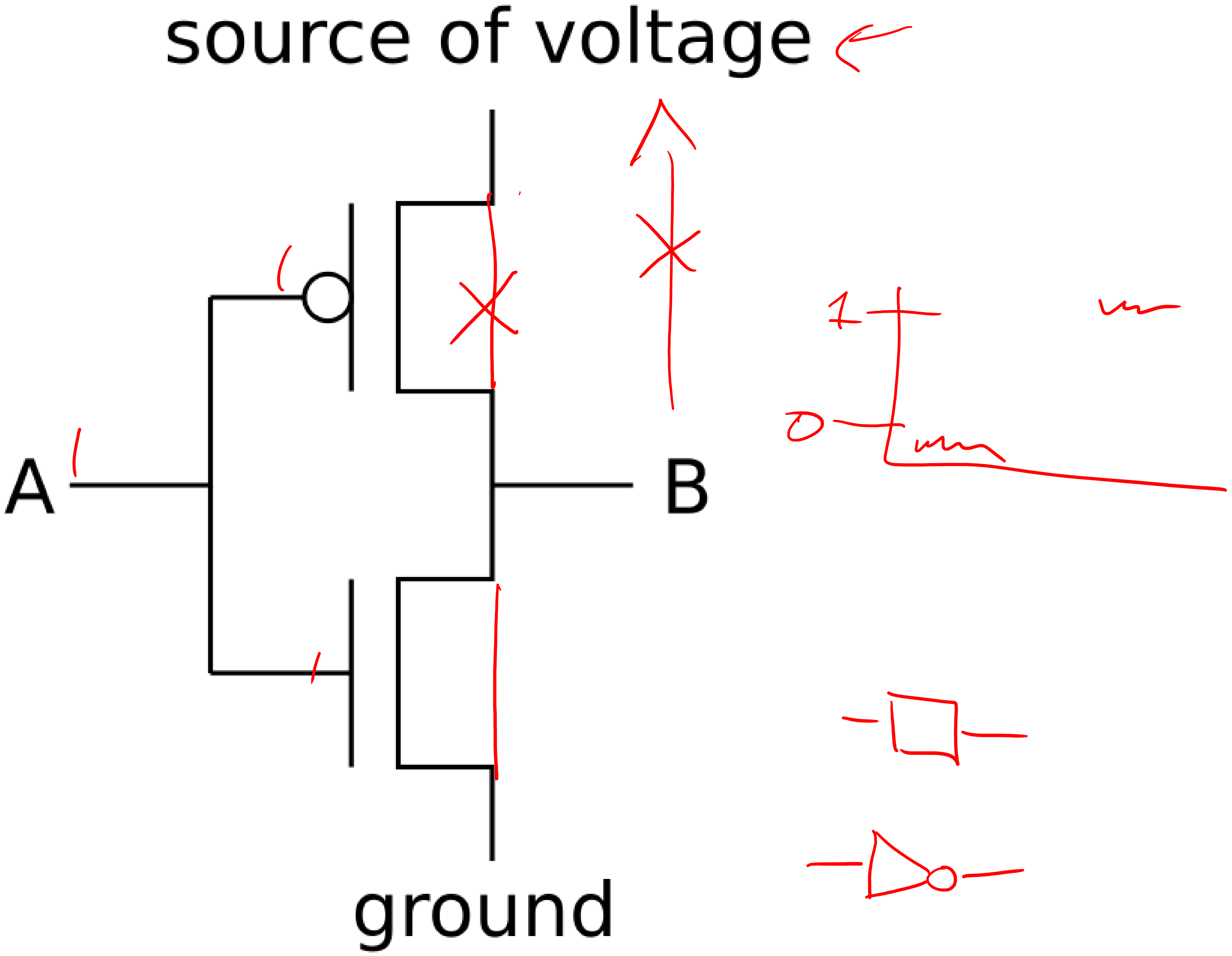


electricity

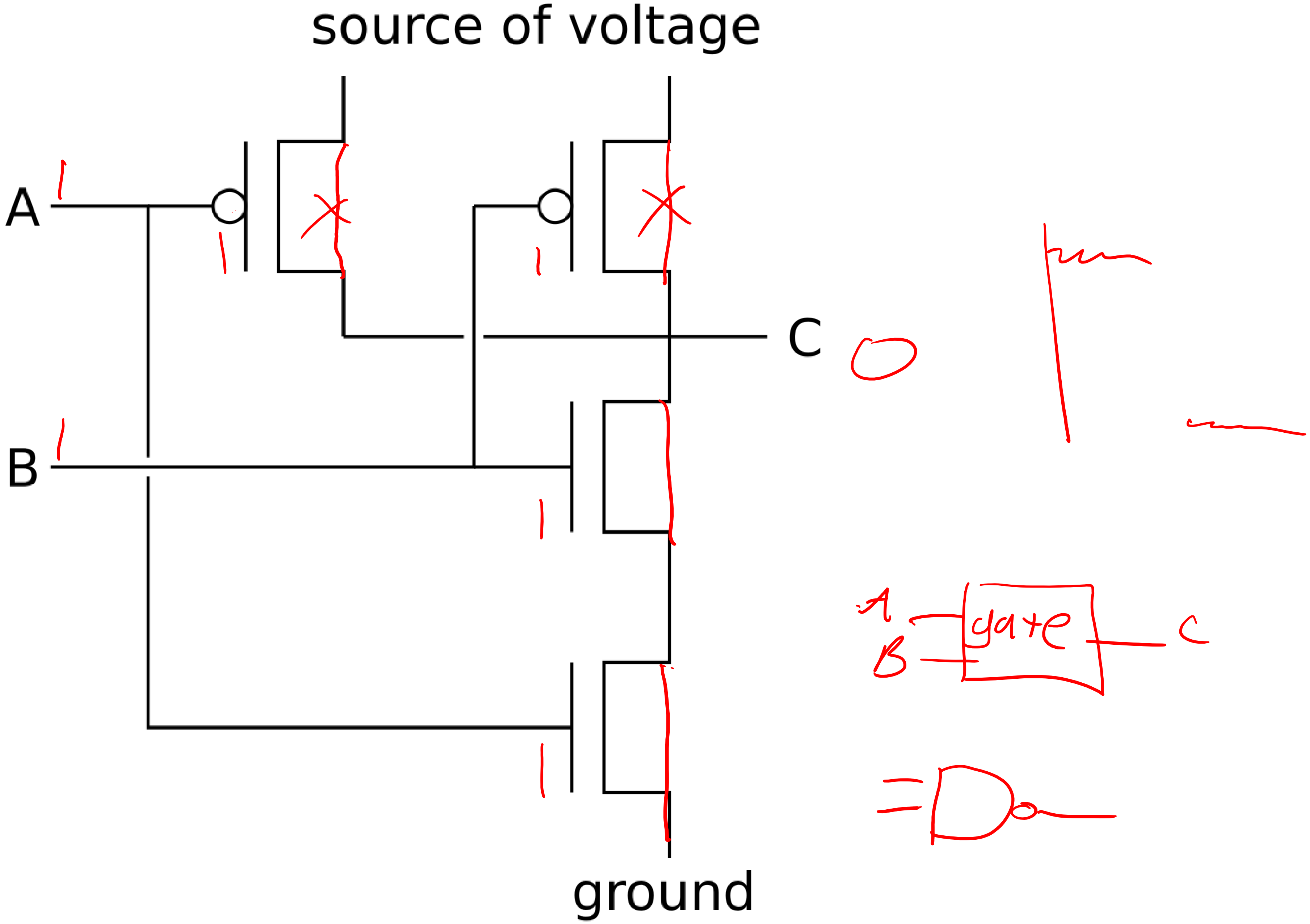
voltage : pressure

current : rate of flow

A	B
0	1
1	0



A	B	C
0	0	1
0	1	1
1	0	1
1	1	0



Trinary Operator