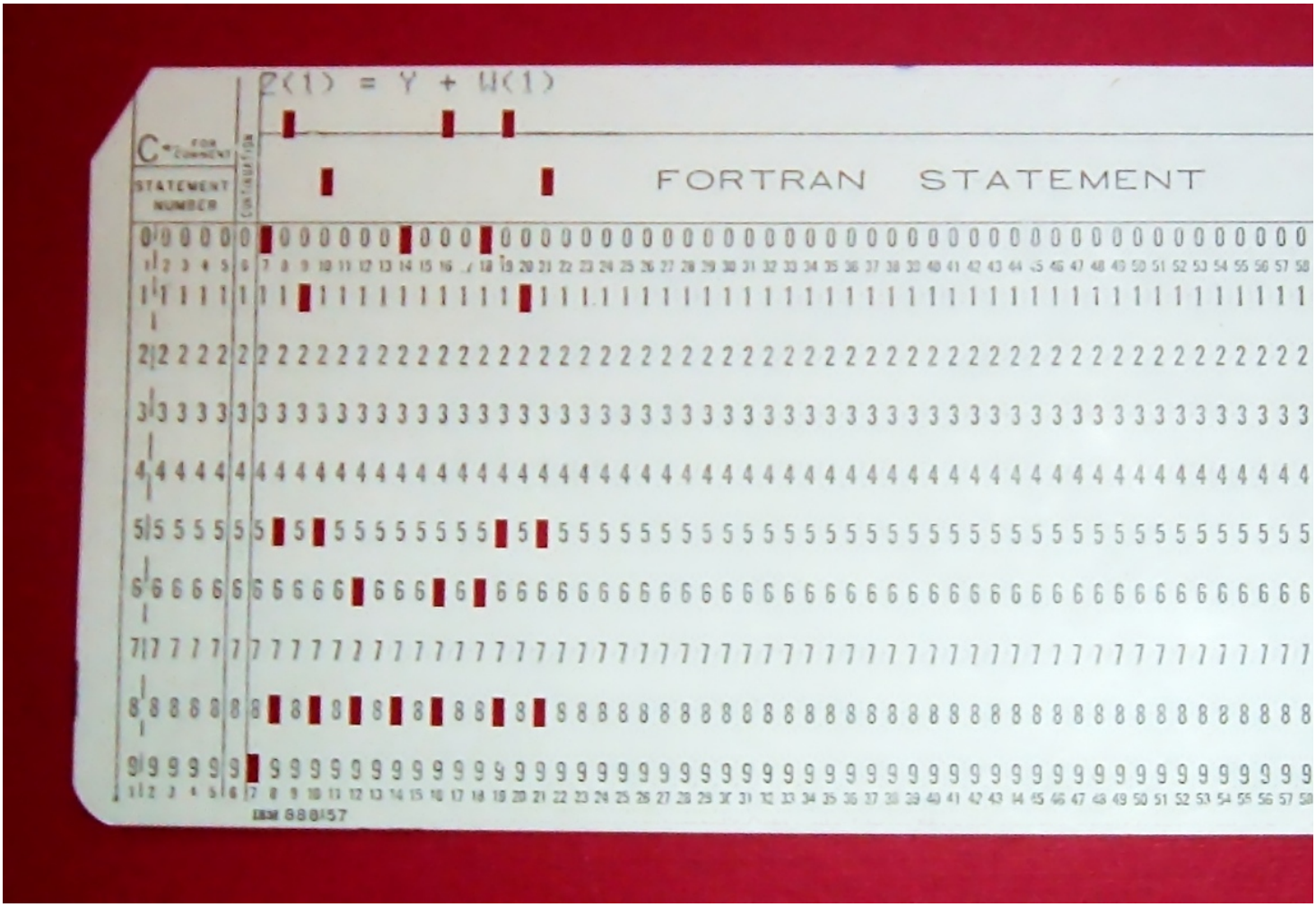
Bogo Radix Sort, Reading

The radix sort, also known as the "bogo" sort, goes back to the 1950's and a mechanical method for sorting computer punch cards.



Note the right edge of the card above, where it shows a project number. To sort a set of cards by their 3-digit project number, for example, 039, the cards were placed in a machine that read the cards one at a time, mechanically "feeling" for the hole in the units digit column of the project number, and routing and stacking the card in a bin matching the sensed digit.

After all cards were scanned and stacked in bins, the cards were collected from the bins and stacked together with the 0-bin's cards on top, and 9's on the bottom. A lever was adjusted on the machine so it would feel for a hole in the next column to the left -- the tens digit -- and route cards to their bins based on that digit. Since the units digit was already scanned, the piles in the tens digits' bins are in order.

The process is repeated for the hundreds digit, and at the end, the cards are all ordered. Each cycle is the process looks at n cards -- so it's big oh is O(n). There are 3 cycles, so multiply O(n) by 3 -- it's still O(n).

For more then three digits in the project number, just increase the number of cycles to match the number of digits. And for text instead of numbers use 26 (or more) bins for letters instead of digits -- it's still O(n), no matter how many bins and cycles.

Radix Sort Algorithm

```
for each digit's place, starting with units, then tens, then hundreds...
  create ten bins, one for each digit
  for each value in the array or linked list
    calculate its bin#: divide by 1, 10, 100, etc, and do modulus
```

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    add the value to that bin
  copy each bin's contents back to the array or linked list
  if only one bin had any values in it, break -- we're done
```

Watch This! **(https://www.youtube.com/watch?v=xuU-DS_5Z4g&feature=iv&src_vid=4S1L-pyQm7Y&annotation_id=annotation_133993417)**

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