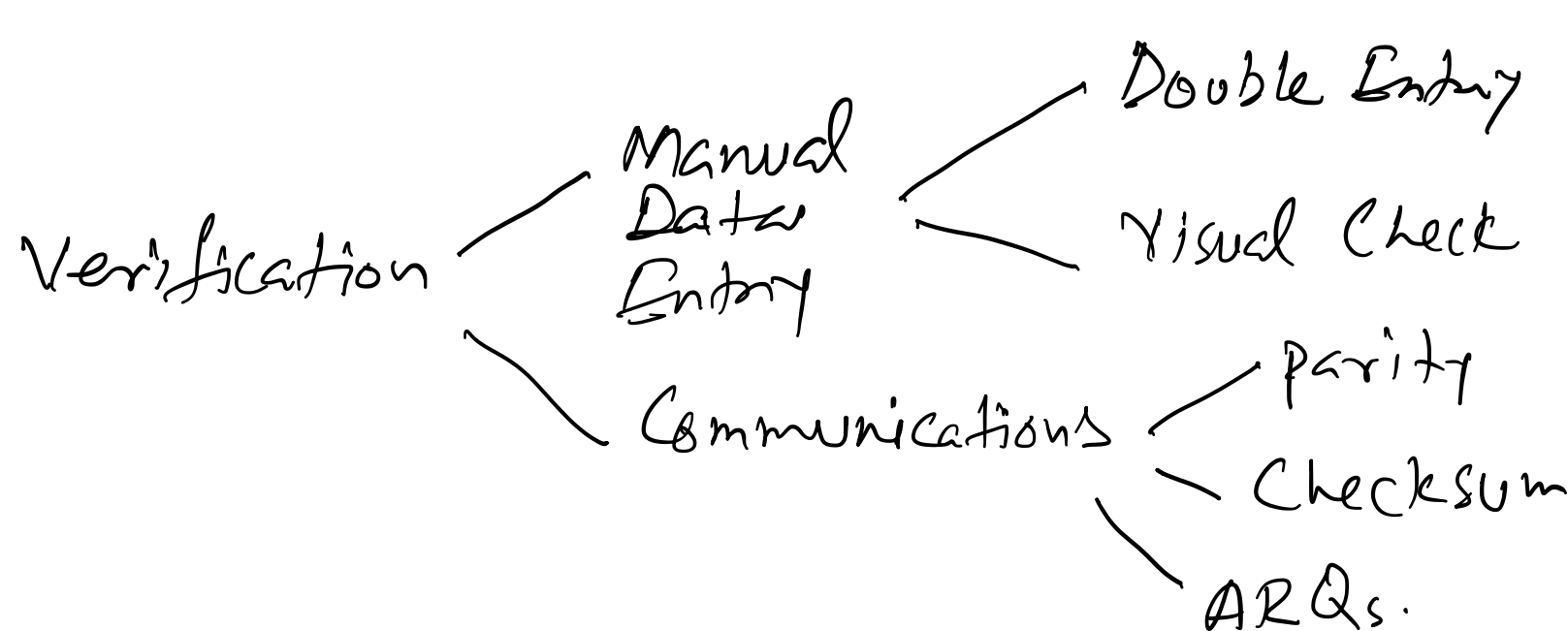


Key terms:

- Data Integrity
- Validation
- Verification
- Check Digit
- Modulo-11
- Checksum
- Parity Check
- Parity bit
- Even/Odd Parity
- Parity byte
- ARQs
- Acknowledgement
- Timeout

Validations:

- Type
- Range
- Limit
- format
- length
- presence
- existence
- consistency
- Uniqueness

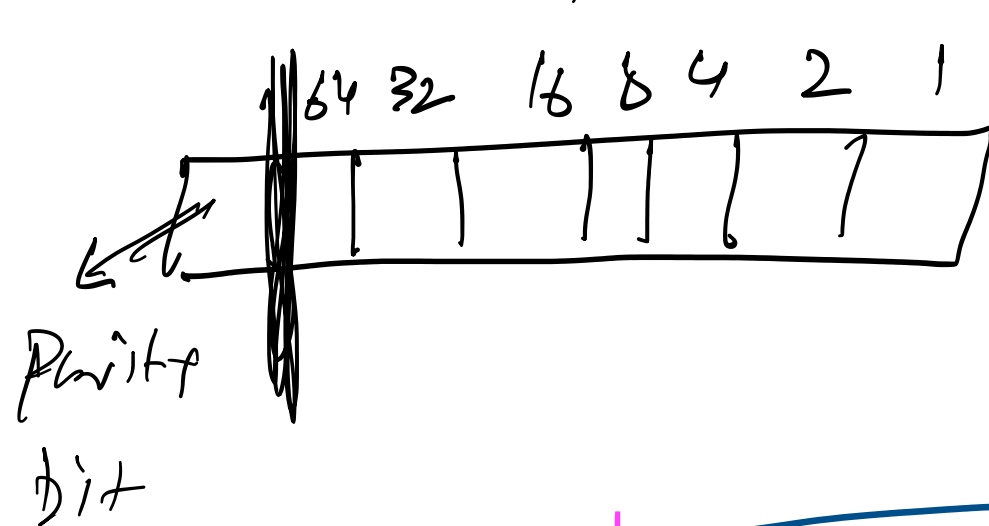
Verification:Parity

Text uses ASCII.

0-127

$$2^7 = 128 \rightarrow 0$$

127



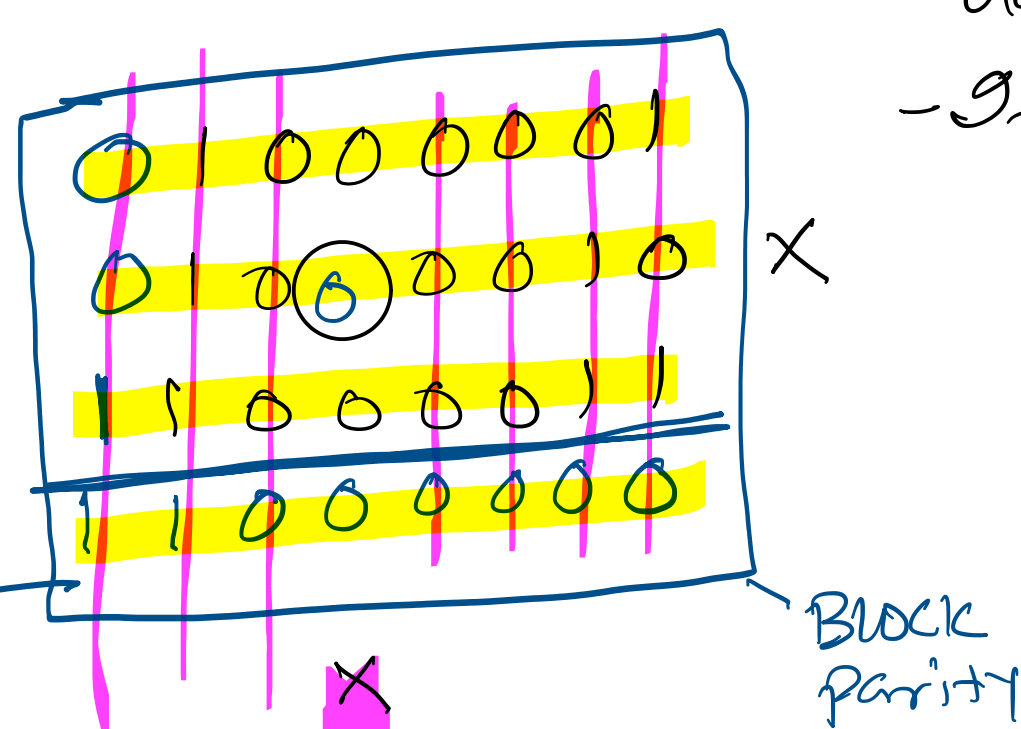
A = 65 =

B = 66 =

C = 67 =

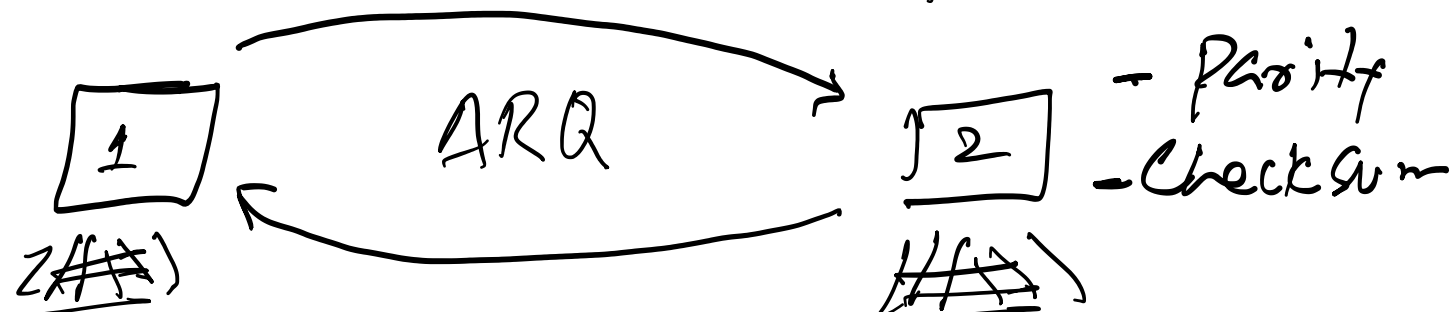
Parity

Byte



Sender

Receiver



- Time set for reply.
- Timeout occurs when second computer does not acknowledge during set time.
- If timeout occurs then first machine re-sends the data.

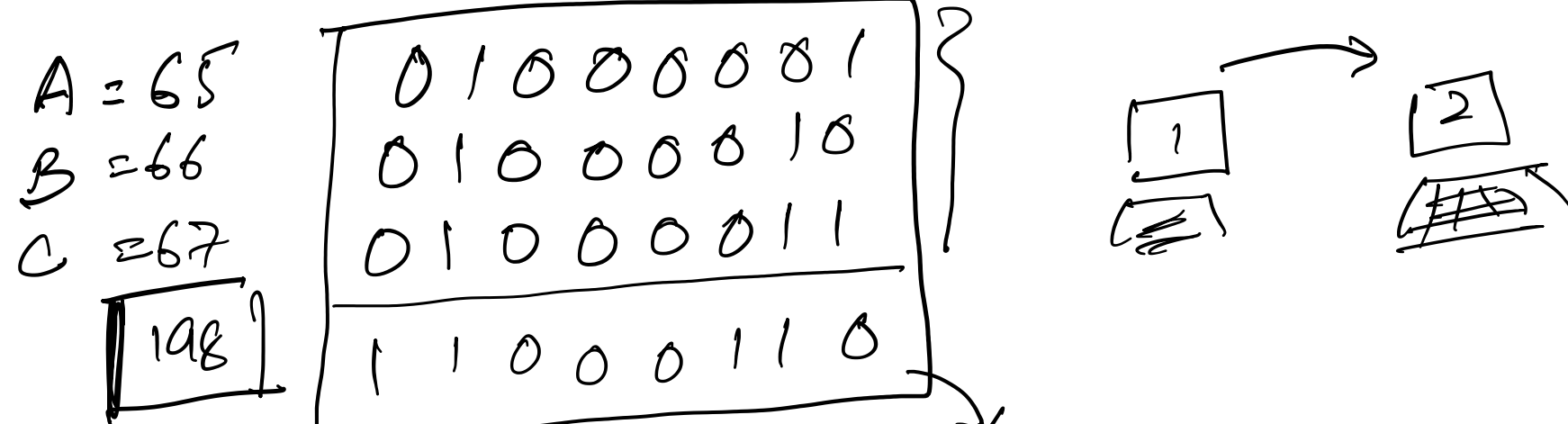
- If acknowledgement arrives:
 - 1) data received and it's correct; send more
 - 2) data is received and it's corrupted; send again

0 → 1 gain.
1 → 0 drop.

Single byte parity has

weaknesses:

1. If two bits are swapped.
2. If two bits are gained.
3. If two bits are dropped.

Checksum:

Z = 90

Y = 89

X = 88

$$267$$

$$\text{Sum} \leq 255 = 2^8$$

$$X = \frac{267}{256} = 1.043$$

$$Y = 1$$

$$Z = Y * 256 = 256$$

$$\text{diff}(X - Z) = 267 - 256 = 11$$

If sum is within 28 range then it is the checksum.

If sum is > 255 or 28 = 256 → 0

Then:

1. We divide sum by 256, X.
2. Round down the ans to the nearest whole number.
3. Then we multiply by 256
4. Subtract that from X
5. Result is checksum.