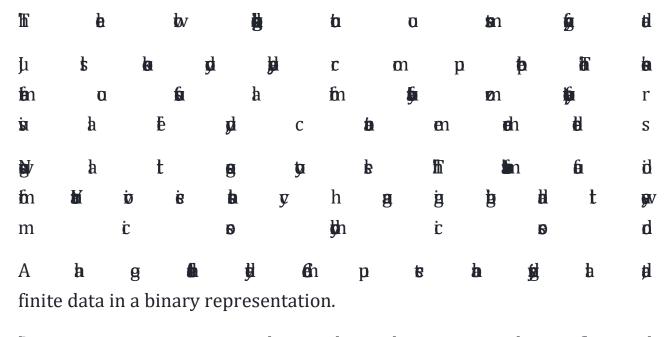
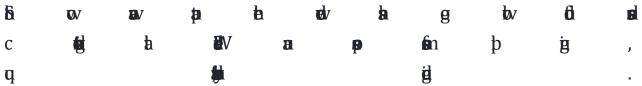
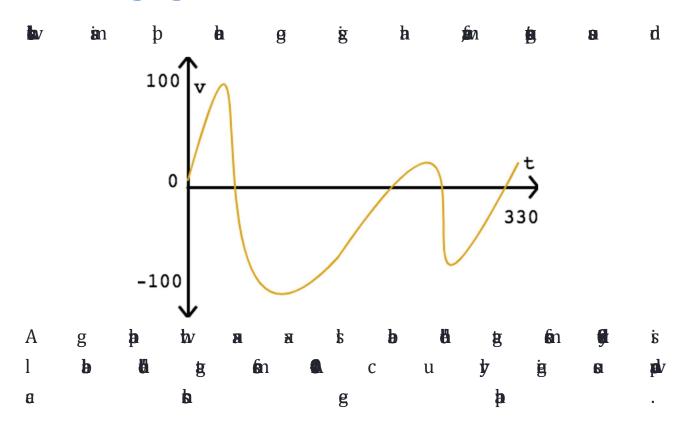
## Converting analog data to binary





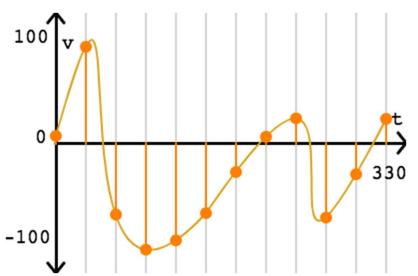
## An analog signal



l lang ig a to a b h h m eh ta x h b ti **c**h **J** Á b h **e**n N m Þ Ħ u e £ • þ u **E**n H P h **t**r В þ u m

## **Sampling**

Ħ bn þ u l 實 e þ b С e **a** a **ts**n **c**h 5 Ġ þ S **E**n **e**n 1 l h h **t**en ġ l h ġ a d ì 1 d bn þ **g**h B



p tv a a b ä g A g **6**n Ġ **6**n l **a** c u **y** b 复 ġ 61 pa A fig h t ba pa e þ y ġ a g u 8 þ Ġ Ø K 脴 **a**n þ 6 h **O**n ì l B ġ d Ħ W þ ġ h m þ Ħ A

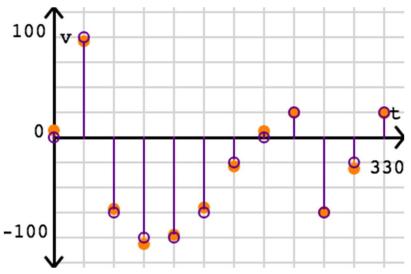
```
(30, 95.98676803710936)
(60, -71.43289186523432)
(90, -106.55949554687498)
(120, -97.21617085937501)
(150, -70)
(180, -29.045472375000003)
(210, 6.171340345703143)
(240, 24.439022283203116)
(270, -74.45763529492186)
(300, -31.31245312500002)
(330, 24)
 拓
        þ
                      þ
                             P
                                    B
                                                                                     b
               u
                                           \mathbf{c}
                                                                e
                                                  \mathbf{m}
                                                         p
                                                                              m
 6
                                                             ich
             \mathbf{m}
                                                                         加
                         p
                                                 Ø
 脴
          ā
                                           þ
                                                   þ
                                                                                     Б
                  an
                          þ
                                   ġ
                                                            h
                                                                    a
                                                                             m
                     d
                                              þ
                                        \mathbf{f}
                                                                               ġ
 81
                           b
                                  a
                                                     m
                                                            þ
                                                                  m
                                      ġ
                    l
 þ
           an
                            1
                                                                  þ
                                                                           ġ
                                                q
                                                                                     8
                                                                Ø
                      þ
 81
                                           B
 A
                         b
                               M
                                     6
                                                             h
                                                                               £
       C
             C
                   ġ
                                                 þ
                                                       ġ
                                                                   m
                                                                         B
                                                                                     b
                                           m
                         l
                      ġ
                                                           ġ
                                 g
                                      b
                                                 b
                                                      h
                                                                h
                                                                     6
 81
       þ
                                           hV
                                                                                ħ
            ġ
                                                                                     e
 ġ
             K
       h
                                                 Б
                                                       y
                                                             1
                   Ą
                         a
                               h
                                     a
                                           \mathbf{m}
                                                                   B
                                                                         ch
                                                                               8
                                                                                     d
 H
             1
                    h
                                                                               £
                         h
                                                             f
                                                                         þ
                                           m
                                                       m
                                                                   a
                               8n
                                     K
                                                 u
             þ
                                                                         h
                                                                                     81
                         Ä
                                                 ġ
                                                             g
 Α
             a
                               ġ
                                     6n
                                                             ġ
       Ø
                   81
                         þ
                                           u
                                                 ä
                                                       e
                                                                         h
                                                                               þ
                                                                                     В
                                        b
                     t
                           E
                                  b
                                               b
                                                     ġ
                                                            h
                                                                               ħ
                                                                  a
 B
                                                                                     a
                                           b
 h
             m
                         h
                               a
                                                 y
                                                       b
       u
                                                             u
                                                                   m
                                                                                     Ŕ
  ħ
                     h
                         1
                                              h
                                                      h
                                                            l
      e
                               811
                                    u
                                       C
                                                  \mathbf{m}
                                                                 m
                                                                      þ
                                                                           ġ
                Ð
                                                                                     a
         ä
 b
                 H
                        þ
                                ġ
                                       h
                                               6
                                                                      þ
                                                                              h
```

a

**j**m

# Quantization

fan l l þ ġ þ en þ A tı d dh þ þ H B **F** C þ u a þ tı **c**h H þ Þ C b  $\mathbf{o}$  $\mathbf{a}$ S 6 þ ġ h bv **e**n þ tı n m ₽V 8 þ C \$ **9** 



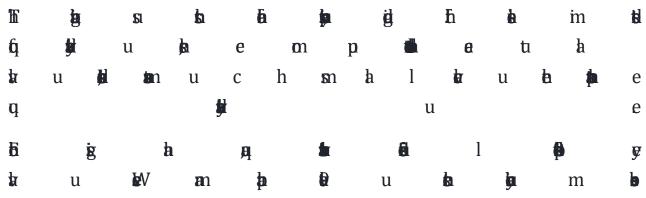
þ þ b ä **G**n w R K g A g Ġ 1 b ä þ g **6**n **C**h ä W e ċ l • **6**n h B h 6 **e**n þ A d K W h h Ħ þ g B **a** 1 h l þ 8 W ļ u b u

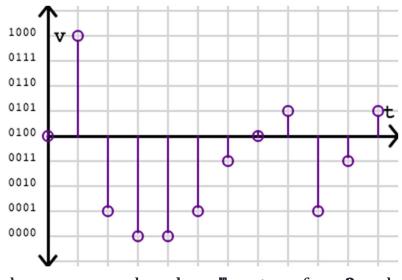
```
(0, 0)
(30, 100)
(60, -75)
(90, -100)
(120, -100)
(150, -75)
(180, -25)
(210, 0)
(240, 25)
(270, -75)
```

(300, -25) (330, 25)

The belong that pelone entropies the six the constant of the c

## **Binary encoding**





tw as a to be the great **6**n 1 1 Α g **þ** Ħ ķ b g Gan 🚨 Б Ħ lie plant h **I** l l a Ħ ħ **b** ä þ g a e e e e e W a e

0100 1000 0001 0000 0000 0001 0011 0100 0101 0001 0011 0101 d 6 ġ W 1 a Ħ 8  $\mathbf{m}$ p a Ð to e e l u h d ħ þ d **B**N oded. enc þ **a** m ġ Ħ **l**an B u in þ B Ħ ė h ċ h h С y **4 5** 6 b e h 1 q B 8 u Þ u ple on m platification len u is 8 1 **í**n i þ u

#### Reconstruction

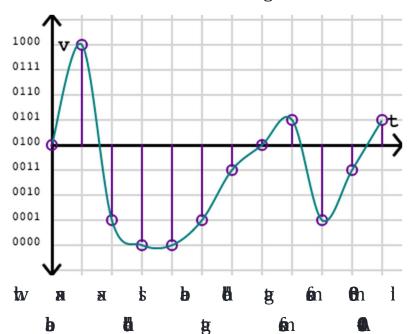
A g

Ħ

þ

b

W g ig h ig b tev tel c e en la te signa b h 8 h ian g Maw Ä h b Ħ 植 h ġ g h ţ to to combigate c W a g h b ig ha jan þ **6** e to c ta V **a** l þ b c u **b** n g h h  $\mathbf{m}$ a



l

B

Ħ

**e**n llis **d**a a h h liatich **h** g tl ħ c u 🖢 B A į į a 8 h Ċ 1 1 4 h h Ħ ġ h W þ þ W **ta**n e u Þ a h 1 h Ġ У



g fan g **h** tw **a** a b b ä **a**n d l is A b **4 6**n **a** c u ty Ħ g Ħ Θ **b** g **b** Ħ h ien 1 a u **y** a 'n ta c tel hal l h g h b m þ Ħ ÉV al ba ta ti Ħ Ev **e**n þ ġ e u **r**el to the talk of talk of talk of the talk of С td e q h g h W a H **B** ġ l **6**1 to c ta h h ġ

# **Summary**

**f**in ġ Ħ þ C a t u þ ħ b e ta e B **p** in H l **h** F u A m p g d A to be to e a l **b** С to attem pt a

```
onstr
rec
u
                        tion of
С
                        e
th
orig
                        ina
l
                        infinite
                        of
stream
                        ontin
C
                        0
u
u
                        S
H
                    u
                                         В
           g g h h
W
  OV
        b
                                þ
                                    þ
                                         ġ
        g by tan p tak ea g h p
Ħ
  a p
                                   þ
                                         a
   to c t to ide
                 a by be b
                               Ħ
                                      d
                                         tl
e
                                  С
            e
                                         y
B
                           p
H
              B
   b
     þ
           8
                  p.
                      y
                          BA
                             þ
                                 ġ
                                         Ş
      tah u
              b
ä
   b
                  b
                      þ
                          þ
                              b
                                     id
                                         b
                                 en
      m ja g h
                         g 🛊 h h
e
   ð
                  an
                      þ
                                      gn
                                         A
þ
          þ
                               þ
                                         Ħ
```