ex. For all characters $d(e) \leq s(e) \cdot d(e) = a$

- Earliest start time
- Earliest shortest interval
- Fewest conflicts

Exchange property (Greedy choice justification)

We = adv.  Pick earliest finish time

Adversary choice
committee formation

workers (shifts)

weighted version

$10

$20

$40

pick min cost committee

→ dynamic program!
## Characters

```
Text: a b b a c b a a b a c c a a a
```

<table>
<thead>
<tr>
<th></th>
<th>Code 1</th>
<th>Code 2</th>
<th>Code 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>b</td>
<td>10</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>c</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

## Encoding Length

\[
\sum_{\text{char} \in C} \text{length}(C) \cdot \text{freq}(C)
\]

## Code examples

- **Code 2**: 01101100101110110110 for `a b b a c`
- **Code 3**: 011011011 for `a`

Prefix-free prefix