Exponential sum templates

- A **k-template** in $\mathbb{Z}$ is a tuple in $(s_1, \ldots s_k) \in \{1, -1\}^k$ such that $\sum_{i=1}^{k} s_i = \gamma(x)$.
- Alternatively written as string of signs: $\{+, -\}^k$
- Example: $w = \bar{2}\bar{2}1\bar{2}1$ and $\gamma(w) = -1$
  - 3-templates: $+--$, $-+-$, $--+$
  - The presentation $(\bar{2}12)(2\bar{1}\bar{2})(\bar{1}\bar{2}1)$ satisfies the template $+--$

Signed permutation templates

- Consider the homomorphism: $\psi\colon B_n \to S_n \times \mathbb{Z}$.
- The k-templates are the cartesian product of permutation and exponential sum k-templates.