

The Number of Free Characters of an Autocorrelation

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Algorithm 1: *NFC*

Input: $n \in \mathbb{N}$, $v \in \Gamma_n$; **Output:** the number of free characters of v ;

```
1  $i := 1$ ;  
2 while ( $i < n$ ) and ( $v_i \neq 1$ ) do  $i := i + 1$ ; // search for the basic period;  
3 if  $i = n$  then return  $n$ ; // no basic period ;  
4 if  $i = 1$  then return  $1$ ;  
5 if ( $i \leq \lfloor \frac{n}{2} \rfloor$ ) then  
6   return  $NFC(i + \text{mod}(n, i), v[n - i - \text{mod}(n, i)..n - 1])$ ;  
7 else  
8   return  $2 \times i - n + NFC(n - i, v[i..n - 1])$ ;
```
