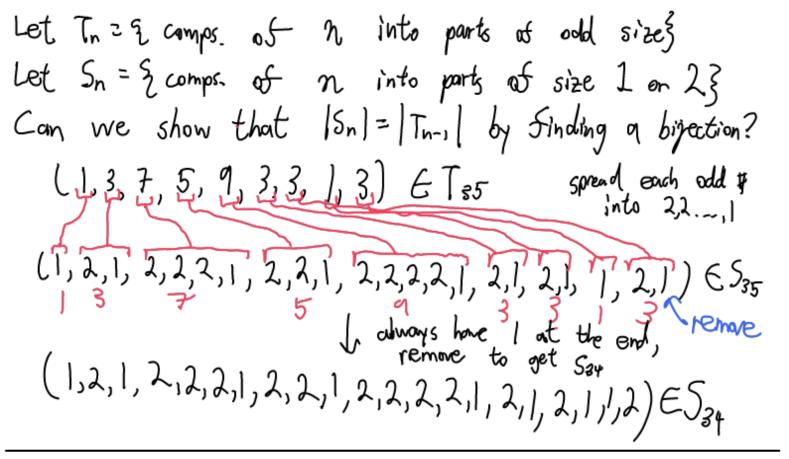
Kecall: Nth Fibonacci humboh = # compositions of n into parts of size 1 or 2 = # comp. of n=1 into odd pourts. Let In = { compositions of n into points of odd size} clearly |Til=|Ta|=1. To show that The is the not Fib. #, it subsices to show that $|T_n| = |T_{n-1}| + |T_{n-2}|$ for $n \ge 3$. We do this by defining a bijection of between T_n and Tn-1 U Tn-2. Ta = {2(1,1)} 了るこを(1,1,1),(3)5 $T_4 = \{(0, 1, 1, 1), (1, 3), (3, 1)\}$ To = 2(1.1.1.1), (1.1.3), (1.3.1), (3.1.1), (5)} To = {(1,1,1,1), (1,1,1,3), (1,1,3,1), (1,3,1,1), (3,1,1,1), (1,5), (5,1), (3,3)3 Let 5: Tn→Tn-1 U Tn-2 be defined by $f(\alpha_1, \alpha_2, ..., \alpha_k) = \begin{cases} (\alpha_1, \alpha_2, ..., \alpha_{k-1}) & \text{if } \alpha_k = 1 \\ (\alpha_1, \alpha_2, ..., \alpha_{k-2}) & \text{if } \alpha_k \neq 1 \end{cases}$ and g: Tn-, U Tn-2 > Tn by 9(a, az, ..., olk)= } (a, az, ..., ak, 1) if (a,..., ak) & Tm ((a,,a,,..,a,)) is (a,,..,a,) = Tm2 g is the inverse of f so f is a bijection. Thus, |Tn|=|Tn-1 U Tn-2|= |Tn-1 U |Tn-2|



Binary strings

A binary string of length k is a k-tyde (a,...,a_k) where dif $\{0,1\}$ (equivalently, just a member of $\{0,1\}^k$)

When writing a str, suppless commas/brackets i.e. a.d.a.d.z.--ak = (a, a2, 013, ---, ak)

If $\sigma = S_1S_2...S_j$ and $T = t_1...t_k$ as binary strings, then $\sigma^{\gamma} = S_1S_2...S_j t_1...t_k$ we write $l(\sigma)$ for the bength of σ , so $l(\sigma^{\gamma}) = l(\sigma) + l(\sigma)$ or denotes $\sigma^{\gamma} = -\sigma$, where $\sigma^{\gamma} = E \leftarrow \text{empt}_{\gamma}$ str.

If A, B aire sets of strings then AB= {dp:deA,BEB\$ eg. \$6,10,000,10101,10000,01101,01000} We also define $A^k = AAA \dots A$ (equivalently the set of all strings of the sorm $a_1, a_2, \dots a_k$ where $a_i \in A$)

eg $\{0,1\}^7 = \{5 \text{ trings of length } 7\}$ $A^k = \{6\} \cup A \cup A^2 \cup A^3 \cup \dots$

eg. 300,113 = 35things whom every block of zeroes or ones
has ever length3.

Substring of s is a string b so that s = abc for some a,c

block of s is a maximal substring whose members are all

zero or all one

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