the capital letter R. It should be noted that SMOB may also be applied to the number of off bits. In the event that the off bits are used, the results are the same, except that the expressions obtained are complimentary.

The SMB and SMOB together form a SMB/SMOB record (hereinafter, "SSR record"). Using the SSR record, the next step is to identify a subset of the possible values of T that have the same SSR record as T (step 206). These values are called active candidates. Consideration only of values that have the same SSR record may significantly reduce the space of possible values and thus reduce the number of bits needed to represent the target T. However, much of the time, the ordinal position of the target T within the constructed combinatorial series defined by the SSR record is still large.

For example, consider a target T equal to 34 which may be represented in binary as "100010". The SMB of T is 6 because there are 6 binary bits used to represent T. The SMOB of T is 2 because T has 2 on bits. The active candidates are those numbers that have the same SSR record as T, i.e., those having 6 bits with 2 on bits. There are 5 active candidates having the same SSR record as shown below in Table 1. Because the most significant bit must be 1, the number of active candidates may be computed by calculating the number of combinations of the remaining SMB - 1 bits given SMOB -1 on bits. This may be computed using elementary combinatorics. The value ${}^{N-1}C_{R-1}$ determines the number of active candidates and may be computed as follows: ${}^{N-1}C_{R-1} = \frac{(N-1)!}{(N-R)!(R-1)!}$. For an SMB of 6 and a SMOB of 2, the number of active candidates is ${}^{6-1}C_{2-1} = \frac{(6-1)!}{(6-2)!(2-1)!} = \frac{5!}{4!1!} = 5.$

Table 1

T (Binary)	T (Decimal)
100001	33
100010	34