

# Re: question about the 'loves' algorithm

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- *From:* [israel@xxxxxxxxxxx](mailto:israel@xxxxxxxxxxx) (Robert Israel)
  - *Date:* 28 Sep 2006 17:16:35 GMT
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In article <[451bd827\\$1@cs1](mailto:451bd827$1@cs1)>, Jeroen <[no\\_mail@xxxxxxxxxx](mailto:no_mail@xxxxxxxxxx)> wrote:

The Qurqirish Dragon wrote:

Jeroen wrote:

Hi all,

I have a somewhat practical and maybe silly question about the 'loves' algorithm. Let me explain first what the algorithm is. Suppose your name is John, and you like a girl named Jane. You can calculate the chance that a relationship would work (but don't take the outcome too seriously). For each character in the word 'loves', count the total number of occurrences in both names 'John' and 'Jane' (you can also take full names...). Then start adding subsequent digits until a 2 digit number is obtained, which is the outcome. So we have:

John L O V E S Jane

start 0 1 0 1 0 (only 1 'o' and 1 'e' in both names)  
step 1 1 1 1 1  
step 2 2 2 2  
step 3 4 4 -> 44 % success rate for a relationship

For some combinations of names, the number of digits seems to grow infinitely. My own name with that of a girl I happen to like grows to more than 1e6 digits in 66 iterations.

Re: question about the 'loves' algorithm

The question is: is there some way of determining that the number of digits will grow infinitely, based on the starting digits? Or will every combination of names eventually break down to a 2 digit number? I have no idea :-)

Jeroen

Some clarification is needed:  
Let's assume the two people are "Lovey" and "Dovey":

start: 1 2 2 2 0  
step 1: 3 4 4 2  
step 2: 7 8 6

is step 3:  
1 5 1 4  
15 14  
1 6 4 (carry the 1 from the 14 into the 15)

or something else?  
The way sums larger than 9 are handled will definitely have an impact on the result (if it ever terminates!)

Each step only handles single digits of the previous result (each sum-results must be written down as separate digits if  $> 9$ ), so it is from step 2:

7 8 6  
1 5 1 4  
6 6 5  
1 2 1 1  
3 3 2  
6 5

Jeroen

OK, suppose at some step your result consists of  $n$  9's with  $n > 3$ .  
Next step is  $2n-2$  digits, consisting of  $n-1$  repetitions of 1 8.  
Next step is  $2n-3$  9's. Since  $2n-3 > n$ , it grows indefinitely.

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