Mathematical Programming : Writing poetry

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Our goal

« Don't use the phone. People are never ready to answer it. Use poetry. »

Jack Kerouack

- Writing two verses.
- Each verse is 12 syllables long.
- Last words rhyme together.
- Sentences make sense.

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First try

- Index words
- Rhymes
  - Each word belongs to a rhyme class
  - The last words must belong to the same class
- Syllables
  - For each word have the number of syllables
  - The sum of syllables in each verse has to be 12
- Make sense
  - Read a long text
  - Compute how frequently one word follows another
  - Maximize the sum of frequencies

First try

- .dat files
- Table of words
- The empty word
- Linearization

Problems :

First try

- .dat files
- Table of words
- The empty word
- Linearization

Problems :

- Deterministic
- Time of the universe

Second try

- Choose the rhyme randomly
- Split and overlap : two tables of 8 words

Another approach

- Syllable by syllable
  - Drop the 12-syllables constraint
  - Need to have real words ?
    - Too strong
    - Look like real words

Sequencial approach

- Construct the sentence word by word from the end
- Greedy knapsack problem
- Works pretty well

Combining strategies

- Construct the sentence 3 words by 3 words from the end
- Best achievement so far, but still too long

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Conclusion

« LA PROSE ET DE L ON NOMME ETIQUETTE
PROSE ET J AI VU PAR TOUS LES CIEUX ALOUETTE »

- Data generation : have better definitions of
  - The number of syllables (too rough)
  - The rhyme classes (too strong)
  - Liaisons
- Have more powerful solvers
- Read longer texts