A #lang for All Seasons

Ben Greenman,
Racket Con 2015

"One who remains true to himself and his beliefs while adapting to all circumstances and times, despite external pressure or influence"

iPoe

Interactive Poetry Editor

http://github.com/bennn/ipoe

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Type a question for help

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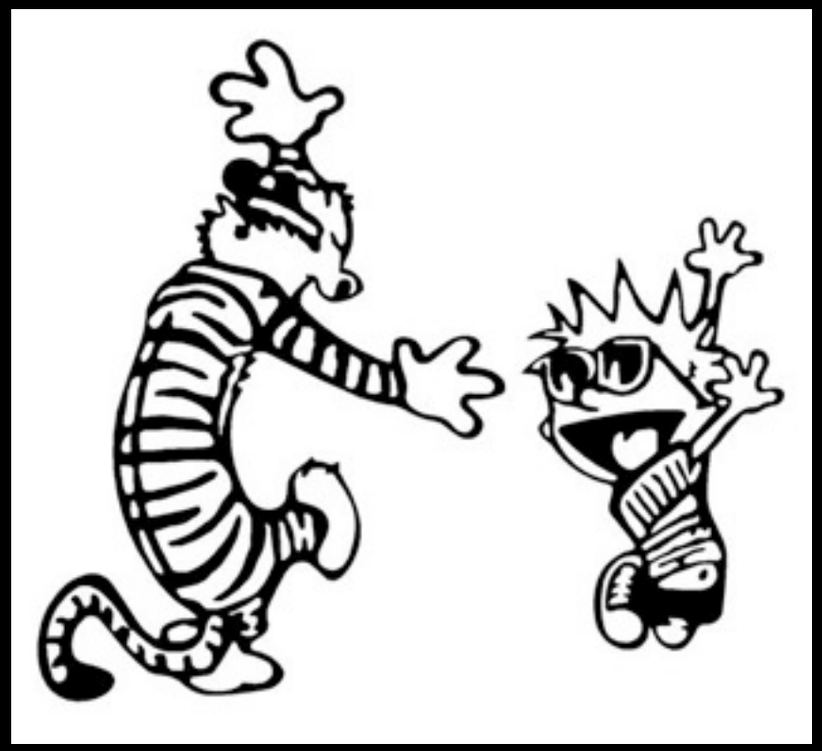

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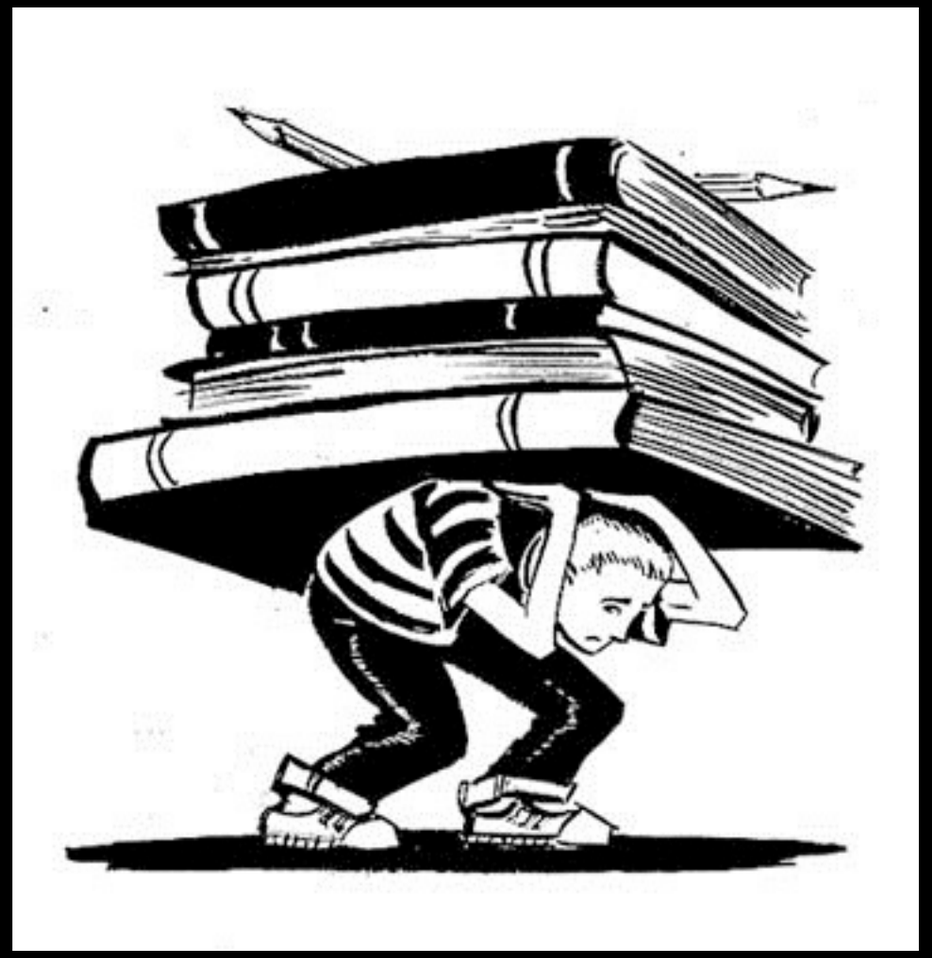

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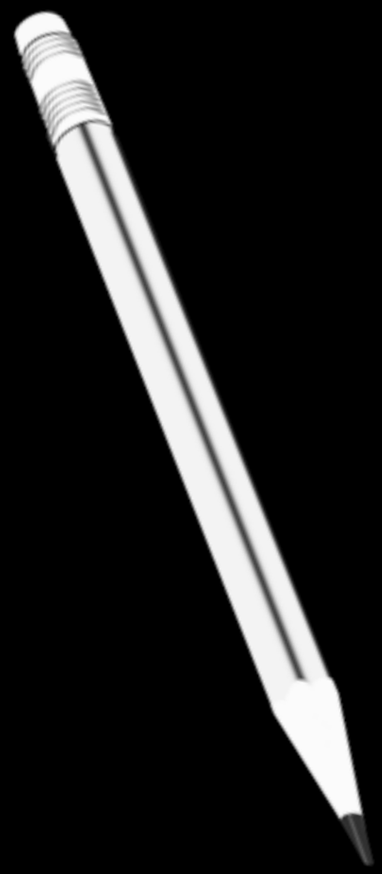

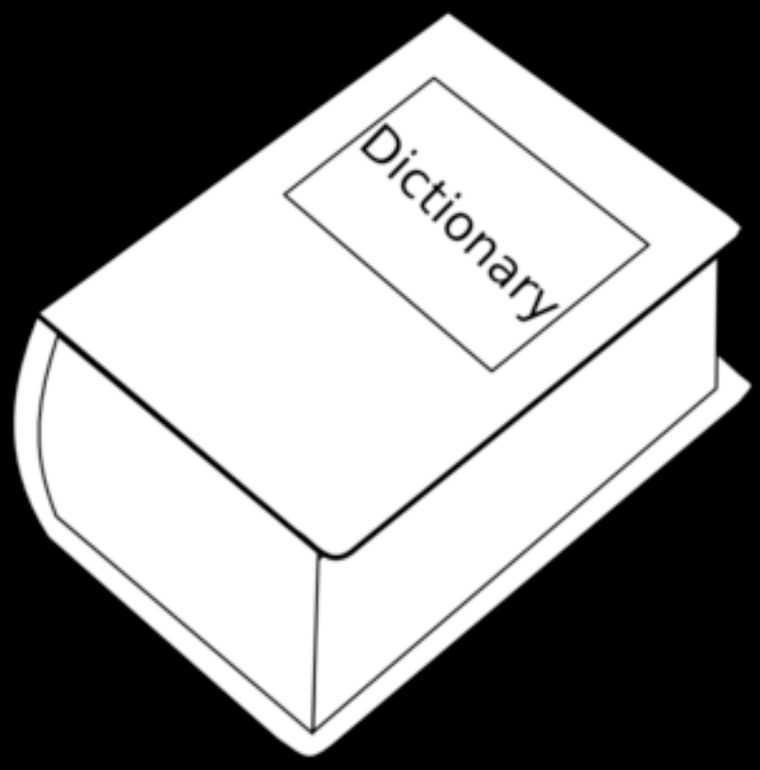

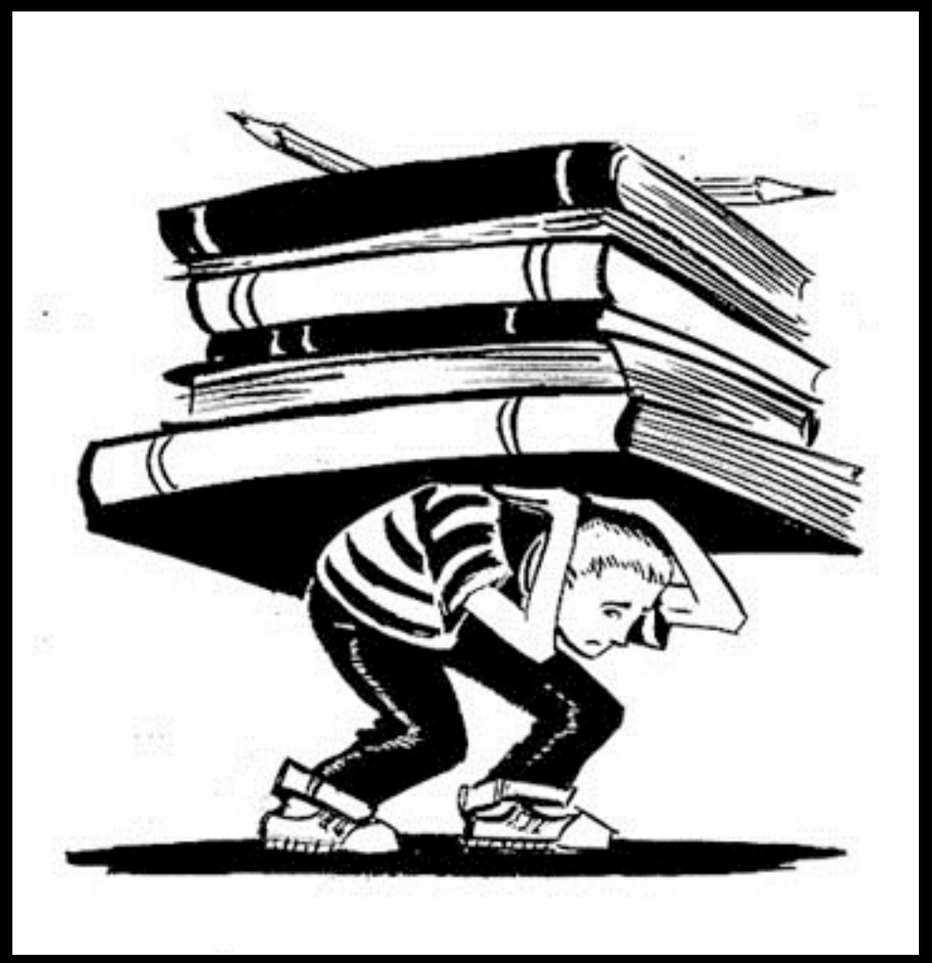

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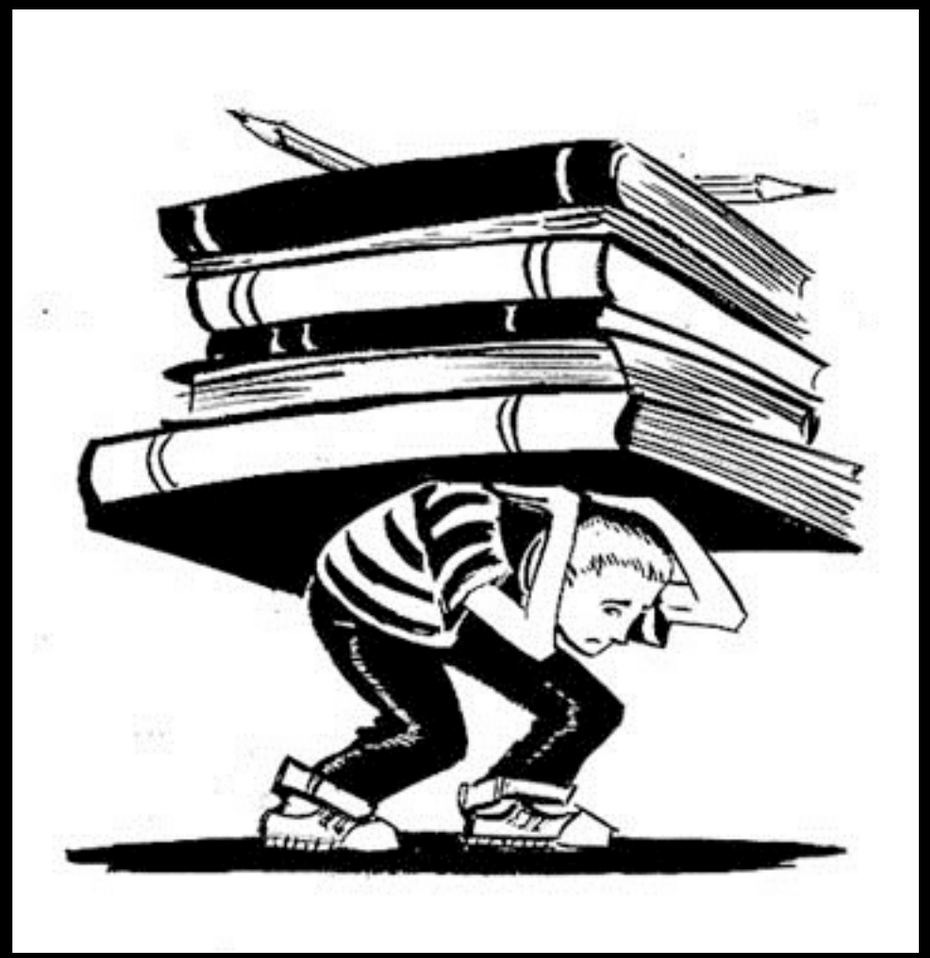

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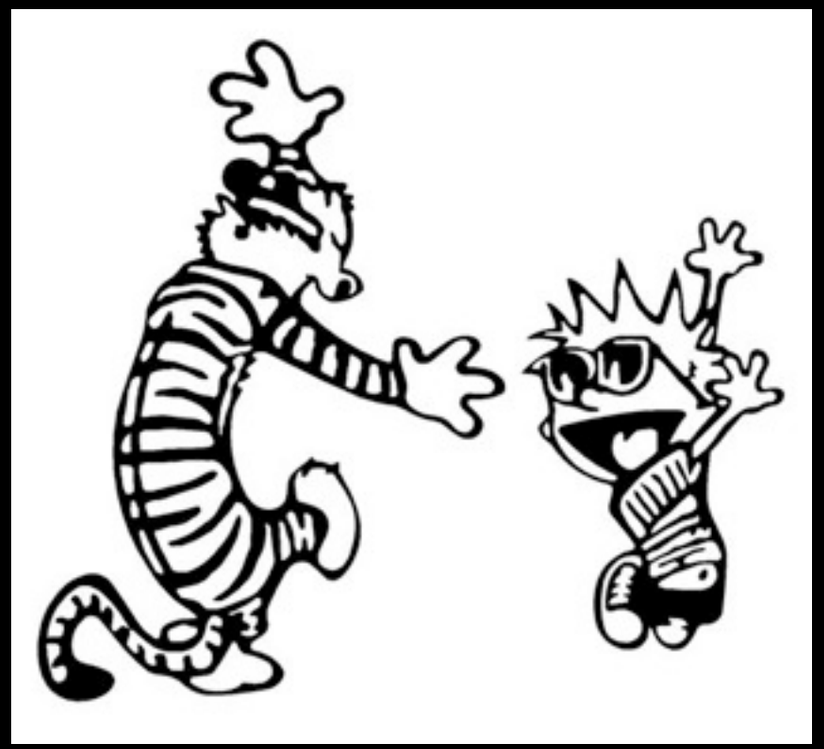

Ye olde 2000 A.D. ...

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- Spellcheck

their ~~vs.~~ thier ?

Ye 2010 A.D. ...

How to use this new POWER?

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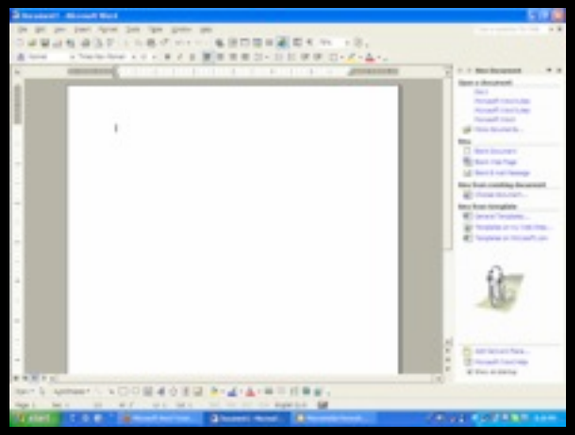
MS Word, for poetry

- Multiple notions of correctness
- Rhyme scheme, visual appearance matter

What would an elegant solution look like?

Designing a solution

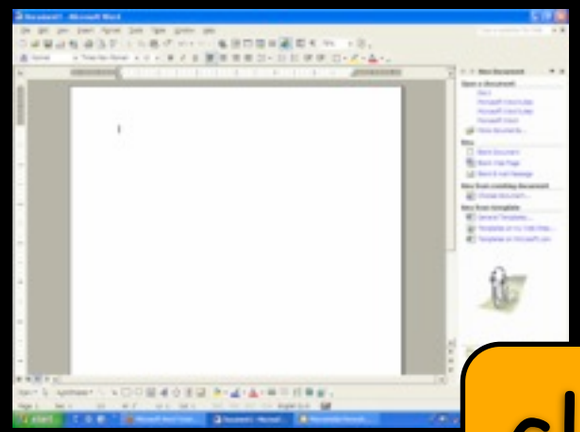


UI

DB

ENTITY NAME	RAM HARDNESS
ENTITY IDENTIFIER	F4.10
DEFINITION	A measure of the resistance to penetration offered by the snowpack to a 40 mm wide cone with a 60 degree pitch. The cone is driven vertically down by a blow from a hammer typically of kg mass which is dropped from heights of 5 to 50 cm. The principal action is one of disaggregation involving both shear and compression (ref. Keeler 1967). Ram Hardness is expressed as a force (in Newtons). This is the product of its mass (kg) multiplied by the acceleration due to gravity (approx. 10 m/sec). Ram hardness gives an index of snow strength.
UNIQUE IDENTIFIER	Ram Hardness Id = Snow Profile Observation Id + Ram depth
VOLUME	
TRUSTEE	Avalanche Technician
ALIASES	
ATTRIBUTE LIST	Ram Hardness Height Vertical Ram Hardness
RELATIONSHIP LIST	

Designing a solution



UI

class Poem

class Sonnet

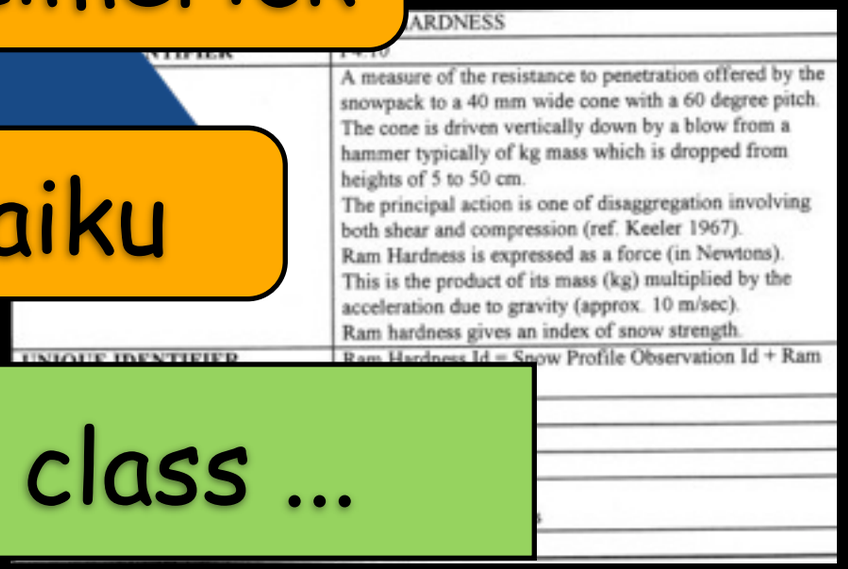
class Couplet

class Limerick

class Villanelle

class Haiku

DB



class Stanza

class Rhyme

class ...

Issues with `class Poem`

- User-defined poem types?
- How to specify & select a type at runtime?
- Syntactic overhead

Did objects help at all?

Pope, 1734

```
#lang ipoe/couplet
Hope springs eternal in the human breast
Man never is, but always to be blest
```

Wright, 1960

```
#lang ipoe/haiku

Burning autumn leaves,
I yearn to make the bonfire
Bigger and bigger
```

Scholtes, 2007

#lang ipoe/limerick

Each computer, in theory, is suitable
To attack any problem computable.
This thesis (Church Turing),
Unproven, alluring,
Remains, as we speak, irrefutable

couplet/lang/reader.rkt

```
#lang ipoe

#:name couplet

#:description "Two rhyming lines"

#:rhyme-scheme {[A A]}
```

haiku/lang/reader.rkt

```
#lang ipoe
#:name haiku
#:description "No rhyme, but
    a strict number of syllables"
#:rhyme-scheme {[5 7 5]}
```

limerick/lang/reader.rkt

```
#lang ipoe
#:name limerick
#:description "Rhyme & syllables"
#:rhyme-scheme {[(A . *) (A . *)
                 (B . *) (B . *)
                 (A . *)]}
```

The iPoe Library

- The ipoe language compiles a specification into a new language (ipoe/haiku, etc)
- Poems are "type-checked" when compiled

Adding a new language

- `mkdir -p new-poem/lang`
- Fill out `new-poem/lang/reader.rkt`
- `raco pkg install ./new-poem`
- Now use #lang new-poem

Sonnet

```
#lang ipoe

#:name english-sonnet
#:description "Shak  spearian!"
#:syllables 10
#:rhyme-scheme {[A B A B]
                [C D C D]
                [D E D E]
                [G G]}
```

Overrides wildcards (*)

Villanelle

```
#lang ipoe

#:name villanelle
#:description "Triplets with a refrain"
#:syllables 10
#:rhyme-scheme {
  [R1 B R2]    [A  B R1]    [A  B R2]
  [A  B R1]    [A  B R2]    [A  B R1 R2]}
#:constraint  (line=? (line 0 (stanza 0))
                      (line 2 (stanza 1)) ...)
```

Thomas, 1952

#lang ipoe/villanelle

Do not go gently into that good night
Old age should burn and rave at close of day
Rage, rage against the dying of the light.

Though wise men at their end know dark is right,
Because their words had forked no lightning they
Do not go gentle into that good night.

...

Coming Attractions

- Metre checking (true iambic pentameter)
- Syntax highlighting by parts-of-speech
- Semantically useful rhyme suggestions

http://github.com/bennn/ipoe/issues