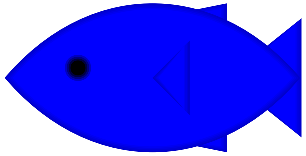
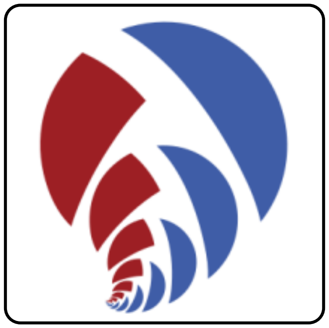
FUN AND GAMES 3

SUMMARY OF THE SUMMER OF #LANG

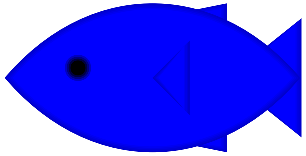
BEN GREENMAN

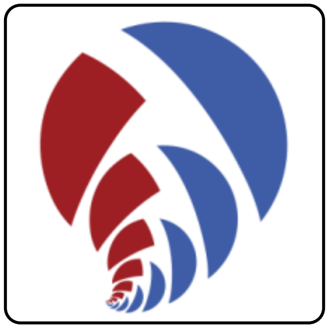
2022-10-30





WELCOME BACK!

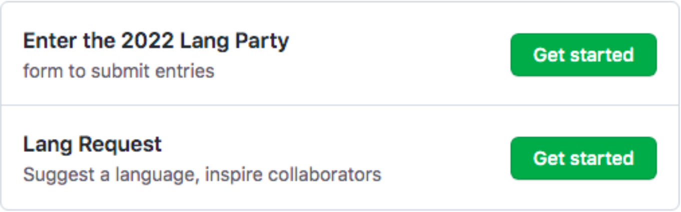




WELCOME BACK!

SUBMIT ANY LANGUAGE

July – October



Enter the 2022 Lang Party
form to submit entries

Get started

Lang Request
Suggest a language, inspire collaborators

Get started

WIN A PRIZE

Beancount
forge/bsl
text-adventure game
SML

Qi 3.0
RAWK
GDLisp
recursive-language
Karp

Super
tmux-vim-demo
Standard ML
TinyBASIC

gtp-output
F♭m
Budge
Hydromel
Sew

Punct
laundry
russian-lang
CPSC411s

LET'S GO!

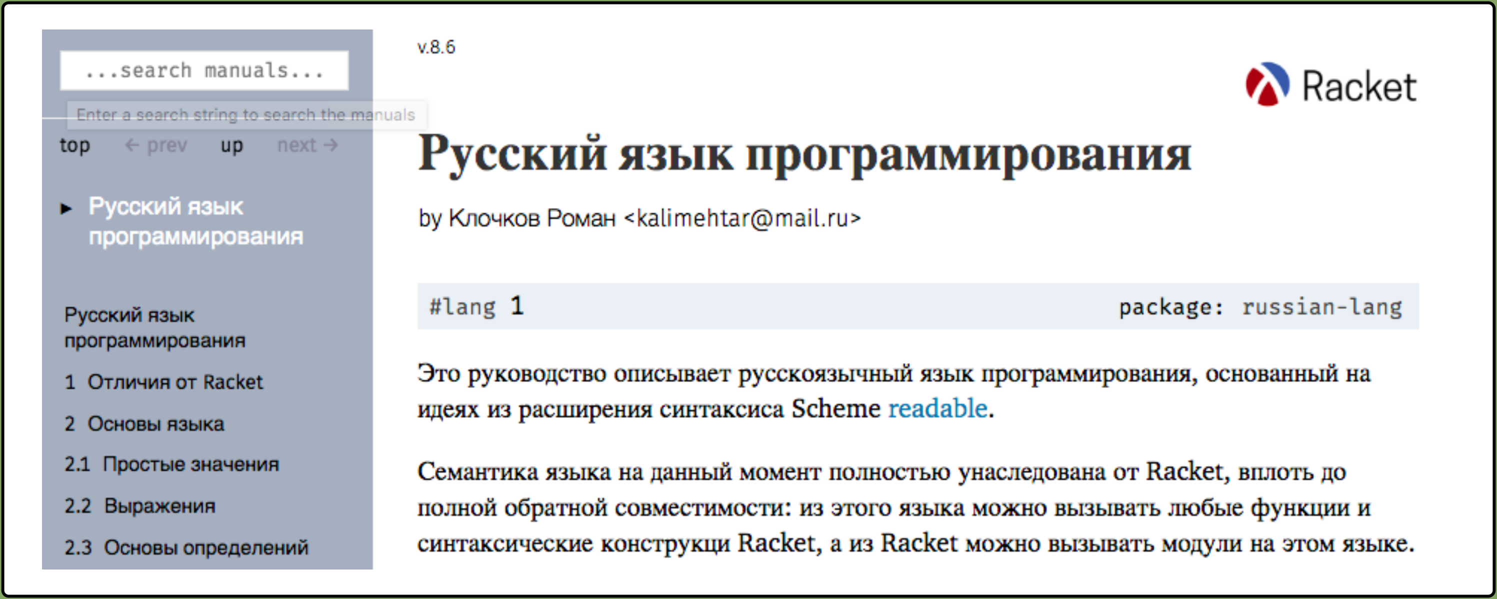
russian-lang

```
#!1
используется
   с-префиксом r: racket

r:letrec
 ;
  is-even? $ r:lambda (n)
   n == 0 || is-odd? (n - 1)
  is-odd? $ r:lambda (n)
   n /= 0 && is-even? (n - 1)
 is-odd? 11
```

RUSSIAN WORDS

SWEET-EXPRS

russian-lang



...search manuals...
Enter a search string to search the manuals
top ← prev up next →
▸ Русский язык программирования

v.8.6

Racket

Русский язык программирования

by Ключков Роман <kalimehtar@mail.ru>

```
#lang 1                                        package: russian-lang
```

Это руководство описывает русскоязычный язык программирования, основанный на идеях из расширения синтаксиса Scheme readable.

Семантика языка на данный момент полностью унаследована от Racket, вплоть до полной обратной совместимости: из этого языка можно вызывать любые функции и синтаксические конструкци Racket, а из Racket можно вызывать модули на этом языке.

github.com/Kalimehtar/russian-lang

laundry

GRAMMAR FOR ORG-MODE

```
#lang org

#+todo: X Y | Z
* DONE runtime keywords
* FUTURE colorer
```

github.com/tgbugs/laundry

Punct

```
#lang punct "my-tags.rkt"
---
title: Prepare to be amazed
date: 2020-05-07
---
> This is **markdown**.

•attrib{Surly Buster (2008)}
```

RACKET-POWERED MARKDOWN

CONTROL CHAR •

github.com/otherjoel/punct

Beancount

DOUBLE-ENTRY BOOKKEEPING

```
#lang reader "beancount.rkt"

* Banking
2020-01-01 open Assets:BoA
  institution: "Bank of America"

2020-01-01 * "Opening Balance"
  Assets:BoA          3239.66 USD
  Equity:Opening     -3239.66 USD

2020-01-06 * "Landlords Inc." "rent"
  Assets:BoA         -2400.00 USD
  Expenses:Rent       2400.00 USD
```

github.com/PanAeon/beancount-racket

RAWK

```
#lang rawk

BEGIN {
   (print "First column:")
   (define rows 0)
}

END { (print "Total rows: " rows) }

.* {
   (print ($s 0))
   (++ rows)
}
```

gitlab.com/xgqt/racket-rawk/

AWK SCRIPTING

```
transform "a,b,c\nd,e,f\ng,h,i\n" ","
```

➤

```
First column:
a
d
g
Total rows: 3
```

Hydromel

HARDWARE DESCRIPTION

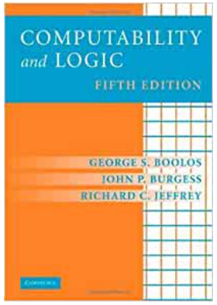
FUNCTIONAL
+
SYNTH-ABLE

```
#lang hydromel

component half_adder
  port a : in bit
  port b : in bit
  port s : out bit
  port c : out bit
  c = a and b
  s = a xor b
end
```

github.com/aumouvantsillage/Hydromel-lang recursive-language

ℕ -> ℕ

Computability and Logic



COMPUTABILITY
and LOGIC
FIFTH EDITION

GEORGE S. BOOLOS
JOHN P. BURGESS
RICHARD C. JEFFREY

```
#lang recursive-language
import Pr, Cn, s, id;

sum = Pr[id_1^1, Cn[s, id_3^3]];

check sum(2, 23) = 25;
```

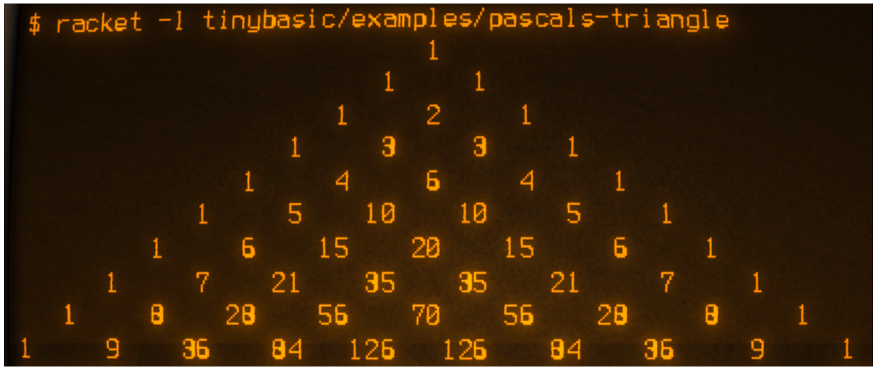
github.com/sorawee/recursive-language

TinyBASIC

```
#lang tinybasic

....
300 IF J = 1 THEN GOTO 682
610 LET Z = 0
612 LET Z = Z + 1
615 LET X = A / 10
620 IF X <> 0 THEN GOTO 612
```

EXPERIENCE HISTORY

TinyBASIC



```
$ racket -l tinybasic/examples/pascals-triangle
                           1
                        1     1
                     1     2     1
                  1     3     3     1
               1     4     6     4     1
            1     5    10    10     5     1
         1     6    15    20    15     6     1
      1     7    21    35    35    21     7     1
   1     8    28    56    70    56    28     8     1
1     9    36    84   126   126    84    36     9     1
```

github.com/winny-/tinybasic.rkt

F♭m

STACK-BASED

FOR LEARNING

```
#lang reader ff

fact: dup 1 > [ dup 1 - fact * ] ? ;

(prints): dup [ q< (prints) q> putc ] ? ;
prints: (prints) drop ;

0 'Factorial' 32 '100:' 10 prints

5 fact .
/* 120 */
```

github.com/Hypercubed/f-flat-minor

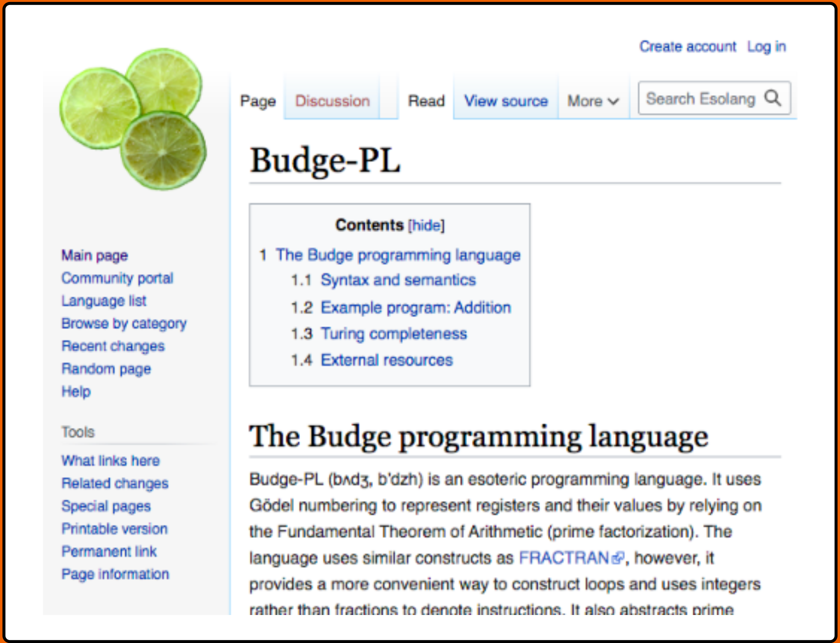
Budge

```
[ [1, −1, 3, 5],
  [2, −2, 4, 6],
  [3, −3, −4],
  [6, −5, −6],
  [4, −4, 1, 3],
  [3, [3, −3], 2],
  [5, −5, 1]]
```

GODEL NUMBERING

PRIME FACTORIZATION

Budge



Budge-PL

The Budge programming language

Budge-PL (bʌdʒ, b'dzh) is an esoteric programming language. It uses Gödel numbering to represent registers and their values by relying on the Fundamental Theorem of Arithmetic (prime factorization). The language uses similar constructs as FRACTRAN, however, it provides a more convenient way to construct loops and uses integers rather than fractions to denote instructions. It also abstracts prime

esolangs.org/wiki/Budge-PL

Standard ML

smlfamily.org

SML

```
#lang sml
title: "A readme file"
author: [
 {name: "Leif"
  location: {{Cambridge, @MA}}}
 {name: "Ben"
  location: {{Boston, @MA}}}]
(define MA "Mass")
```

MARKUP

NOT ML

github.com/LeifAndersen/racket-sml

Super

LANG EXTENSION

INDEXING

FIELD + METHOD ACCESS

```
#lang super racket

(define str "abcde")
str[1]

(define p
  (new point [x 0] [y 0]))
(p .move-x 1)
```

github.com/soegaard/super

Sew

```
#lang sew racket

[8<-plan-from-here [<> ...]
 #'(begin (provide main)
          (define (main) <> ...))]

(displayln "Hello, world!")
```

LANG EXTENSION

EASY EDITING

github.com/lathe/sew-for-racket

gtp-output

DATA DESCRIPTION

QUICK STATS

```
#lang gtp-measure/output/typed-untyped
("00000" ("cpu time: 566 ....
("00001"  ("cpu time: 820 ....
("00011"  ("cpu time: 805 ....
....
```

github.com/bennn/gtp-measure/blob/master/output/typed-untyped.rkt tmux-vim-demo

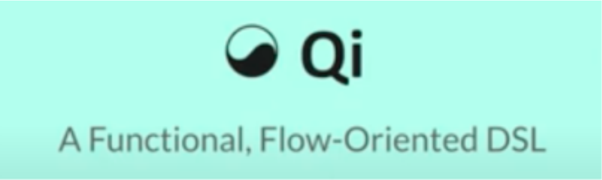
```
#lang tmux-vim-demo

#:name "python-demo"
#:pre "python3"

# pick 10 samples, compute avg.
from random import sample
samples = sample(range(100), 10)
sum(samples)/len(samples)
```

INTERACTIVE DEMOS

WORRY FREE

github.com/benknoble/tmux-vim-demo

Qi 3.0


◒ Qi

A Functional, Flow-Oriented DSL

FLOW-ORIENTED

```
#lang racket
(require qi)

(map (☯ (~> 10 2))
        (list + - * /))

;; (12 8 20 5)
```

github.com/countvajhula/qi

forge/bsl

```
#lang forge/bsl
sig StackElem {
 prev:  lone StackElem
}
pred Step1Pop {
 some Init.top
 Mid.top = Init.top.prev
}
```

TEACHING SW MODELING

github.com/tnelson/Forge

CPSC411 langs

126 LANGUAGES

SCHEME → X86

```
#lang cpsc411/hashlangs/base

(begin
 (set! r15 5)
 (set! r14 1)
 (with-label fact (compare r15 0))
 (jump-if = end)
 (set! r14 (* r14 r15))
 (set! r15 (+ r15 -1))
 (jump fact)
 (with-label end (set! rax r14))
 (jump done))
```

github.com/cpsc411/cpsc411-pub

GDLisp

```
#lang gdlisp

(define (foo a)
 (match a
  [1  10]
  [2  20]
  [_ (let ([acc 0])
       (for ([n a]) (-set! acc 10))
       acc)]))
```

GODOT

GDSCRIPT

github.com/eutro/gdlisp

Karp

```
#lang karp/problem-definition
(decision-problem
 #:name iset
 #:instance
  ((G is-a (graph #:undirected))
   (k is-a (natural)))
 #:certificate
  (subset-of (vertices-of G)))
```

NP REDUCTION

RANDOM TESTING

github.com/REA1/karp

THAT'S ALL!

PART 2: LANG REQUEST

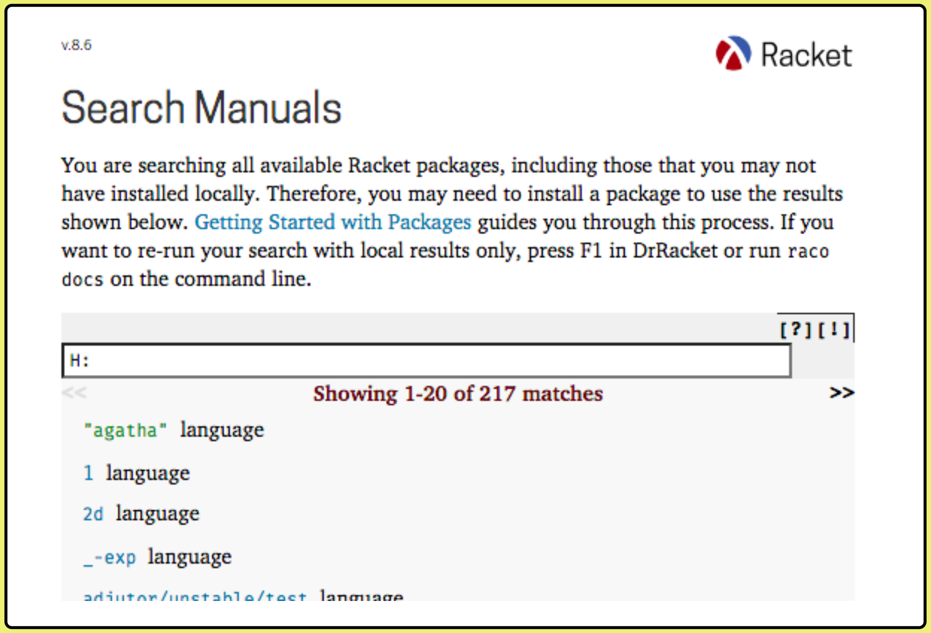
LOP Fans + Racket Gurus

PART 2: LANG REQUEST

1. Text Adventure Game
2. Frosthaven: Monsters and Scenarios

github.com/lang-party/Summer2022

Search H: for hashlangs



v.8.6

Search Manuals

You are searching all available Racket packages, including those that you may not have installed locally. Therefore, you may need to install a package to use the results shown below. Getting Started with Packages guides you through this process. If you want to re-run your search with local results only, press F1 in DrRacket or run `raco docs` on the command line.

`H:`

Showing 1-20 of 217 matches

`"agatha"` language

`1` language

`2d` language

`_-exp` language

`adjutor/unstable/test` language

THANK YOU!

KALIMEHTAR TGBUGS OTHERJOEL AUMOUVANTSILLAGE BOR0 HYPERCUBED BENNN

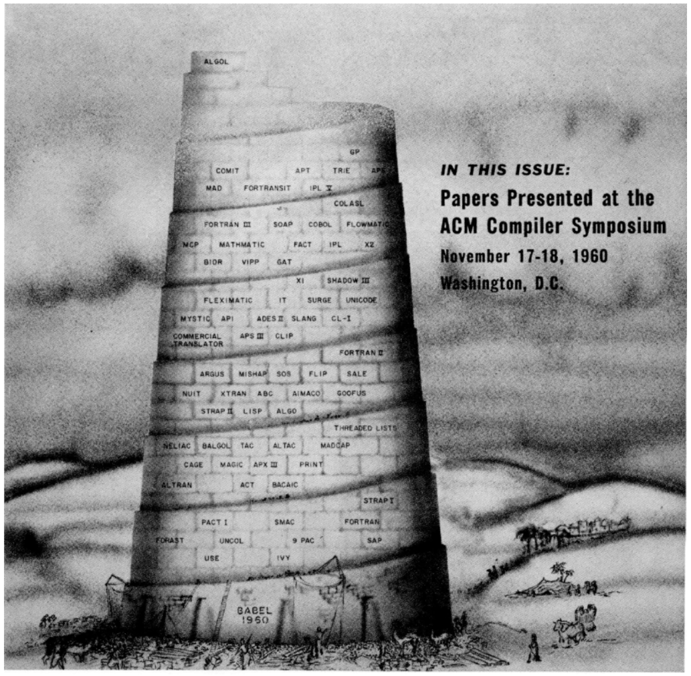
WINNY- COUNTVAJHULA DMACQUEEN BENKNOBLE SOEGAARD LEIFANDERSEN SORAWEE

EUTRO XGQT HENDRIKBOOM3 FANC096 PANAEON WILBOWMA ROCKETNIA REA1

CONTRIBUTORS

STEPHEN

IMAGE CREDIT



IN THIS ISSUE:

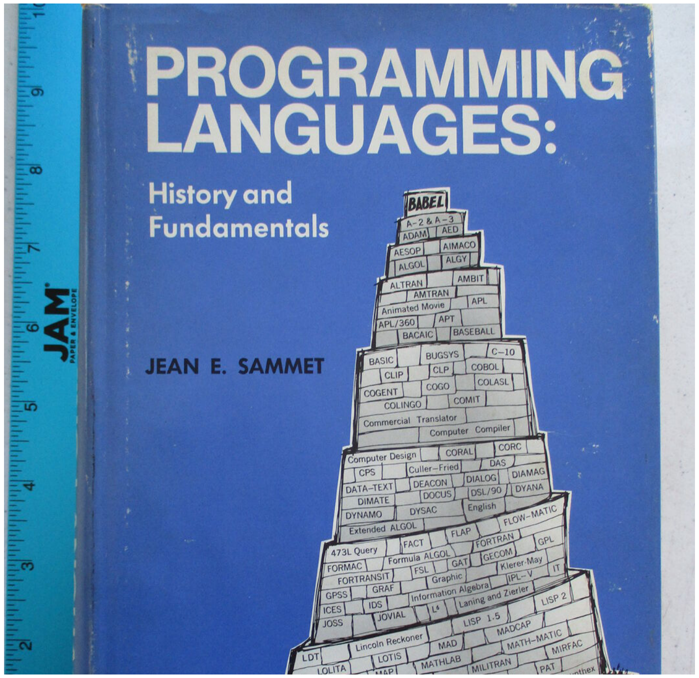
Papers Presented at the ACM Compiler Symposium

November 17-18, 1960

Washington, D.C.

Jean Sammet
(1928 – 2017)

IMAGE CREDIT



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