

Racket Assignment #1: Getting Acquainted with Racket/DrRacket + LEL Sentence Generation

Abstract: This assignment helps us to download the program development environment (PDE) software. This helps us to be acquainted with the nature and functionality of DrRacket and make the proper use of the LEL sentence generator.

Code for the LEL Sentence Generator

```
#lang racket
```

```
;-----  
; LEL sentence generator, with helper PICK,  
; serveral applications of APPEND, several  
; applications of LIST, and one use of MAP  
; with a LAMBDA function.
```

```
( define ( pick list )  
  ( list-ref list ( random ( length list ) ) )  
)
```

```
( define ( noun )  
  ( list ( pick '( robot baby toddler hat dog ) ) )  
)
```

```
( define ( verb )  
  ( list ( pick '( kissed hugged protected chased hornswoggled )))  
)
```

```
( define ( article )  
  ( list ( pick '( a the ) ) )  
)
```

```
( define ( qualifier )  
  ( pick '( ( howling ) ( talking ) ( dancing )  
            ( barking ) ( happy ) ( laughing )
```

```

        ( ( ( ( ( ( ( (
      )
    )

( define ( noun-phrase )
  ( append ( article ) ( qualifier ) ( noun ) )
)

( define ( sentence )
  ( append ( noun-phrase ) ( verb ) ( noun-phrase ) )
)

( define ( ds ) ; display a sentence
  ( map
    ( lambda ( w ) ( display w ) ( display " " ) )
    ( sentence ) ) ( display "" ) ; an artificial something
  )

```

Demo for the LEL Sentence Generator

```

> (pick '(red yellow blue))
'yellow
> (pick '(red yellow blue))
'blue
> (pick '(red yellow blue))
'yellow
> (pick '(Racket Prolog Haskell Rust))
'Racket
> (pick '(Racket Prolog Haskell Rust))
'Haskell
> (pick '(Racket Prolog Haskell Rust))
'Racket
> (pick '(Racket Prolog Haskell Rust))
'Haskell
> (noun)

```

'(dog)
> (noun)
'(dog)
> (noun)
'(dog)
> (verb)
'(hornswoggled)
> (verb)
'(chased)
> (verb)
'(hugged)
> (verb)
'(protected)
> (article)
'(the)
> (article)
'(a)
> (article)
'(the)
> (article)
'(the)
> (qualifier)
'(happy)
> (qualifier)
'()
> (qualifier)
'(howling)
> (qualifier)
'()
> (qualifier)
'(howling)
> (qualifier)
'()
> (qualifier)
'(barking)
> (qualifier)
'()
> (qualifier)
'()
> (qualifier)

'()
> (qualifier)
'(howling)
> (qualifier)
'(dancing)
> (qualifier)
'(happy)
> (qualifier)
'()
> (qualifier)
'(laughing)
> (qualifier)
'(talking)
> (qualifier)
'(howling)
> (noun-phrase)
'(a toddler)
> (noun-phrase)
'(a dancing robot)
> (noun-phrase)
'(a happy robot)
> (noun-phrase)
'(a dancing hat)
> (noun-phrase)
'(the talking baby)
> (noun-phrase)
'(a talking hat)
> (noun-phrase)
'(the dancing dog)
> (noun-phrase)
'(a toddler)
> (sentence)
'(the dancing robot protected a toddler)
> (sentence)
'(a dancing hat hornswoggled the hat)
> (sentence)
'(the dog kissed a talking baby)
> (sentence)
'(a baby hornswoggled a robot)
> (sentence)

'(a baby chased the robot)

> (sentence)

'(a robot hugged a laughing toddler)

> (sentence)

'(a happy hat kissed the baby)

> (sentence)

'(the happy toddler kissed a hat)

> (ds)

a dog kissed the barking baby

> (ds)

the hat protected the laughing dog

> (ds)

a hat hornswoggled a dog

> (ds)

a baby chased a toddler

> (ds)

the dog kissed a talking hat

> (ds)

a hat hornswoggled the dog

> (ds)

the dog protected a laughing toddler

> (ds)

the toddler hugged the dog

> (ds)

a howling hat kissed a baby

> (ds)

a talking toddler chased a laughing baby

> (ds)

the toddler hornswoggled the baby

> (ds)

the robot hornswoggled a robot