

# Translation Roclet

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```
#' A number x is called a fixed point of a
#' function f if x satisfies the equation
#' f(x) = x.
#' @translate greek

fixed.point <- function(f, first.guess)
  tolerance <- 0.00001
  is.close.enough <- function(x, y)
    abs(x - y) < tolerance
  try <- function(guess)
    next.guess <- f(guess)
    if (is.close.enough(guess, next.guess))
      next.guess else try(next.guess)

  try(first.guess)

#' phi is a fixed point of x -> 1 + 1/x;
#' since, given phi^2 = phi + 1, 1 + 1/phi =
#' (phi + 1)/phi = phi^2/phi = phi.
#' @translate latvian

phi <- fixed.point(function(x) 1 + 1/x, 1.0)

;; Ένας αριθμός x ονομάζεται ένα σταθερό σημείο
;; σε συνάρτηση f αν πληροί x την εξίσωση f (x) = x.

(define fixed-point
  (lambda (f first-guess)
    (begin
      (define tolerance 1e-05)
      (define is-close-enough
        (lambda (x y) (< (abs (- x y)) tolerance)))
      (define try
        (lambda (guess)
          (begin
            (define next-guess (f guess))
            (if (is-close-enough guess next-guess)
                next-guess
                (try next-guess)))))
      (try first-guess))))

;; Phi ir fiksēto punktu x -> 1 + 1 / x, jo,
;; nemot vērā, Phi ^ 2 = Phi + 1, 1 + 1/phi =
;; (Phi + 1) / Phi = Phi ^ 2/phi = Phi.

(define phi
  (fixed-point (lambda (x) (+ 1 (/ 1 x))) 1))
```

Figure 1: The translation Roclet translates descriptions according to @translate, and source into Scheme.

```

1 library(roxygen)
2 source('translate.R')
3
4 register.preref.parsers(parse.name, 'translate')
5
6 #' Optionally translate the description according to the
7 #' \code{@@translate} tag; then compile the R source
8 #' into schReme: a fictional R dialect in scheme.
9 #' @return \code{NULL}
10 make.source.translation.roclet <- function() {
11   language <- NULL
12
13   reset.state <- function(partitum)
14     language <-<- NULL
15
16   translate.source <- function(partitum) {
17     translate.description(partitum)
18     translate.expression(partitum)
19   }
20
21   translate.description <- function(partitum) {
22     if (!is.null(partitum$description))
23       if (is.null(language) ||
24           is.null(translator <- language.to.translator[[language]]))
25         pretty.print(partitum$description)
26     else
27       pretty.print(translator(partitum$description))
28   }
29
30   translate.expression <- function(partitum)
31     pretty.print.sexp(expression.to.sexp
32                       (expression.from.partitum(partitum)))
33
34   select.language <- function(key, value)
35     language <-<- value
36
37   roclet <- make.roclet(pre.parse=reset.state,
38                       post.parse=translate.source)
39
40   roclet$register.parser('translate',
41                       select.language)
42
43   roclet
44 }
45
46 make.source.translation.roclet(english.to.spanish)$parse("phi.R")

```

Figure 2: Source for the translation Roclet; see [git.roxygen.org](http://git.roxygen.org) for full listing.