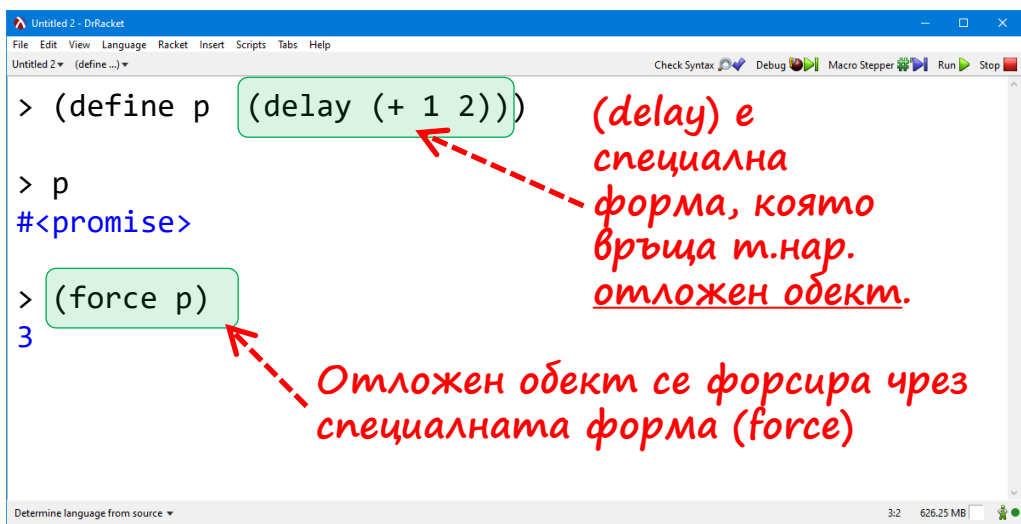


Отлагане на операции

доц. Атанас Семерджиев

1

Специални форми (force) и (delay)



The screenshot shows a DrRacket IDE window with the following code and annotations:

```
> (define p (delay (+ 1 2)))  
  
> p  
#<promise>  
  
> (force p)  
3
```

Handwritten annotations in red:

- Arrow pointing to `(delay (+ 1 2))`: *(delay) е специална форма, която връща т.нар. отложен обект.*
- Arrow pointing to `(force p)`: *Отложен обект се форсира чрез специалната форма (force)*

At the bottom of the window, it says "Determine language from source" and "3:2 626.25 MB".

2

2

Специални форми (force) и (delay)

(delay <expr>) → (lambda () <expr>)

(force <delayed-object>) → (<delayed-object>)

```
(define p (delay (+ 1 2)))  
(p)
```

*Грешка е да опитаме
да приложим
отложеня обект, все
едно е процедура!!!*

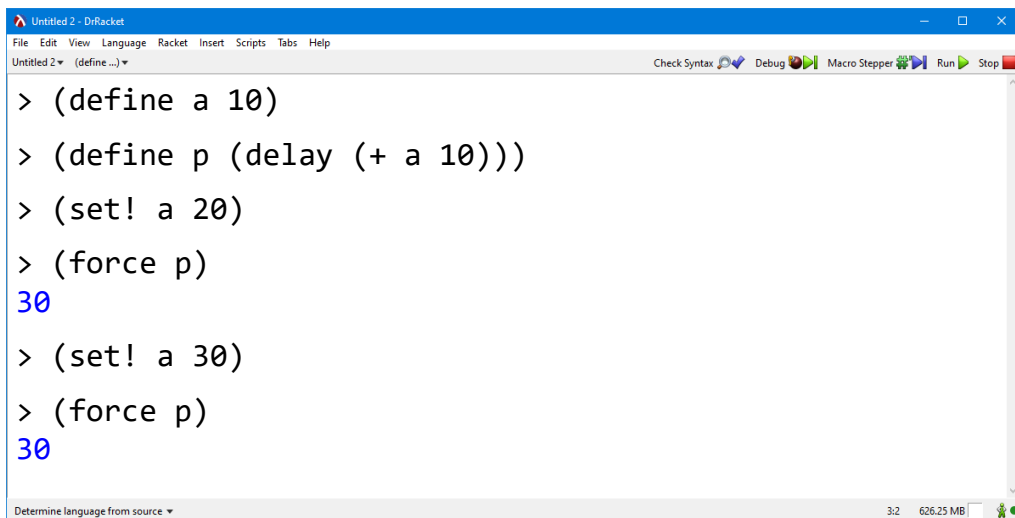
3

3

```
Untitled 2 - DrRacket  
File Edit View Language Racket Insert Scripts Tabs Help  
Untitled 2 (define ...) Check Syntax Debug Macro Stepper Run Stop  
> (define a 10)  
> (define p (delay (+ a 10)))  
> (force p)  
20  
Determine language from source 3:2 626.25 MB
```

4

4



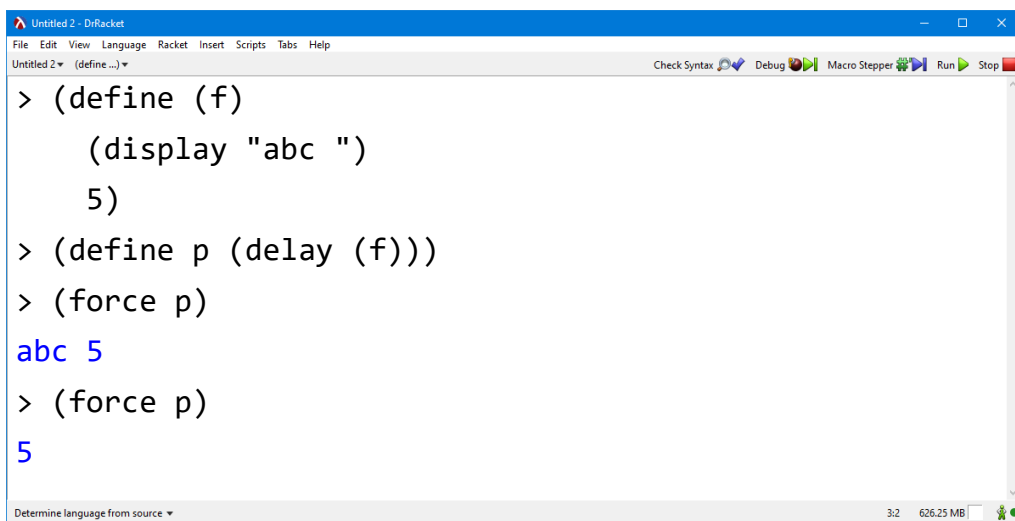
The screenshot shows the DrRacket IDE window titled "Untitled 2 - DrRacket". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The code area contains the following Racket code:

```
> (define a 10)
> (define p (delay (+ a 10)))
> (set! a 20)
> (force p)
30
> (set! a 30)
> (force p)
30
```

The status bar at the bottom indicates "Determine language from source" and "3:2 626.25 MB".

5

5



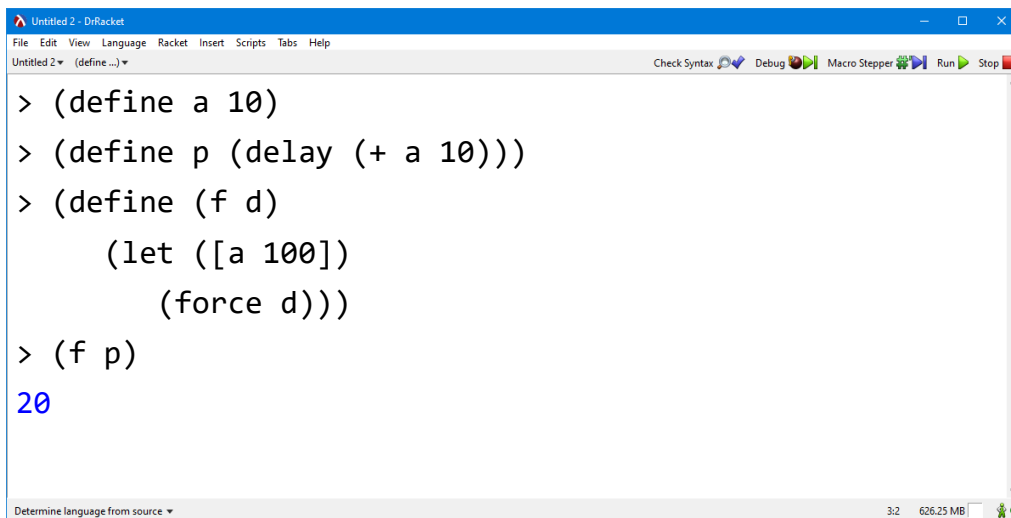
The screenshot shows the DrRacket IDE window titled "Untitled 2 - DrRacket". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The code area contains the following Racket code:

```
> (define (f)
  (display "abc ")
  5)
> (define p (delay (f)))
> (force p)
abc 5
> (force p)
5
```

The status bar at the bottom indicates "Determine language from source" and "3:2 626.25 MB".

6

6



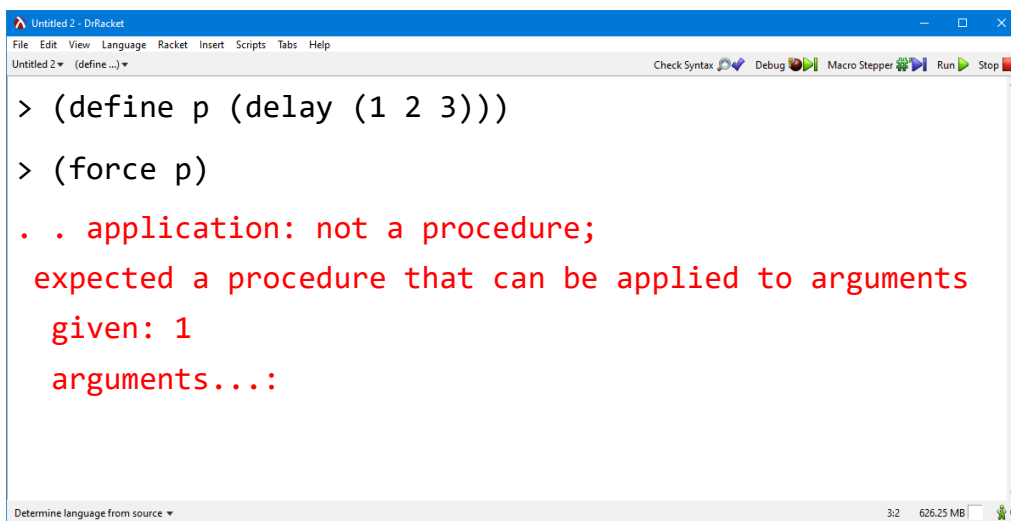
The screenshot shows the DrRacket IDE window titled "Untitled 2 - DrRacket". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The code area contains the following Racket code:

```
> (define a 10)
> (define p (delay (+ a 10)))
> (define (f d)
  (let ([a 100])
    (force d)))
> (f p)
20
```

The status bar at the bottom indicates "Determine language from source" and "3:2 626.25 MB".

7

7



The screenshot shows the DrRacket IDE window titled "Untitled 2 - DrRacket". The menu bar and toolbar are the same as in the previous screenshot. The code area contains the following Racket code:

```
> (define p (delay (1 2 3)))
> (force p)
```

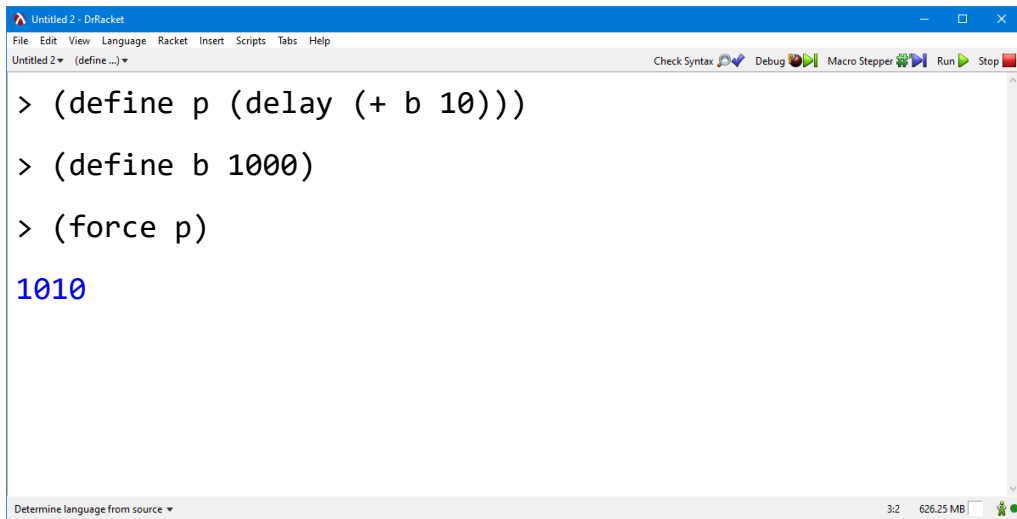
The output area displays an error message in red text:

```
. . application: not a procedure;
expected a procedure that can be applied to arguments
given: 1
arguments....:
```

The status bar at the bottom indicates "Determine language from source" and "3:2 626.25 MB".

8

8



The screenshot shows the DrRacket IDE window titled "Untitled 2 - DrRacket". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The code area contains the following Racket code:

```
> (define p (delay (+ b 10)))  
> (define b 1000)  
> (force p)  
1010
```

The status bar at the bottom indicates "Determine language from source", "3:2", and "626.25 MB".

9

9



10