

Bilgisayar Bilimcileri Haklıymış

Programlama dillerindeki son gelişmeler

Chris Stephenson

Department of Computer Science, İstanbul Bilgi University

Last compiled on March 30, 2012

- ▶ Java is the new Cobol

- ▶ Java is the new Cobol
- ▶ lambda is the new boy on the block

- ▶ Anahtar kelimeler
- ▶ Functional,
- ▶ lambda,
- ▶ closure,
- ▶ first class functions,
- ▶ first class types,
- ▶ Generic types

λ
is the new boy on the block

- ▶ Yazılı geliştirme konferansları
- ▶ Let's Google for it
- ▶ <http://bit.ly/GW7Gsb>
- ▶ Biraz tarihi olanları seçelim

- ▶ QCON 2010, 2011, 2012
- ▶ %20 Functional Konuları

- ▶ QCON 2012
- ▶ Simon Ritter
- ▶ “Java is not the new Cobol”
- ▶ Sunuma bir göz atalım

- ▶ QCON 2012
- ▶ Philip Wadler
- ▶ Pizzayı kim ısmarlamış?

- ▶ ACCU (C ve C++)
- ▶ 2002-2007 %0 Functional
- ▶ 2008 Özel track %10 Functional
- ▶ 2009-2011 %10 - %15 Functional

- ▶ ACCU (C ve C++)
- ▶ 2012 %20 Functional
- ▶ “Lambdas in Java 8”
- ▶ “Refactoring to Functional”
- ▶ “Functional programming you already know”
- ▶ “Generic Types”

bizde bile...

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En samimi iltifat taklittir

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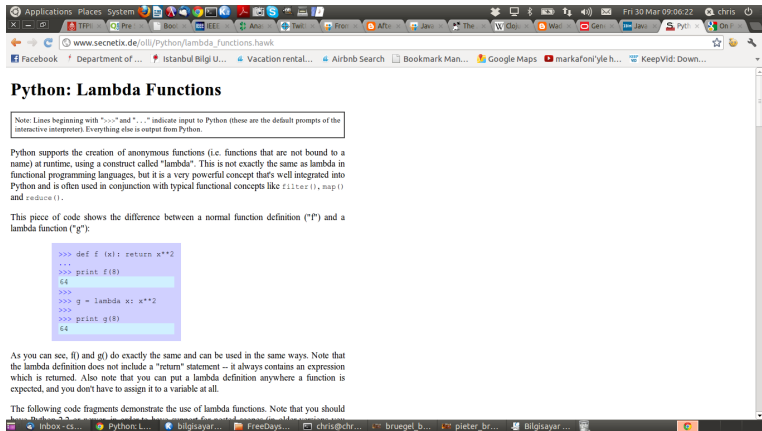
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Kötü taklit olsa da



The screenshot shows a web browser window with the address bar displaying `www.sectnetix.de/oli/Python/lambda_functions.hawk`. The page title is "Python: Lambda Functions". A note in a box states: "Note: Lines beginning with '>>>' and '>...>' indicate input to Python (these are the default prompts of the interactive interpreter). Everything else is output from Python." The main text explains that Python supports the creation of anonymous functions (i.e. functions that are not bound to a name) at runtime, using a construct called "lambda". It notes that this is not exactly the same as lambda in functional programming languages, but it is a very powerful concept that's well integrated into Python and is often used in conjunction with typical functional concepts like `filter()`, `map()` and `reduce()`. A code block shows the difference between a normal function definition ("f") and a lambda function ("g"):

```
>>> def f(x): return x**2
>>> print f(8)
64
>>>
>>> g = lambda x: x**2
>>> print g(8)
64
```

As you can see, `f()` and `g()` do exactly the same and can be used in the same ways. Note that the lambda definition does not include a "return" statement – it always contains an expression which is returned. Also note that you can put a lambda definition anywhere a function is expected, and you don't have to assign it to a variable at all.

The following code fragments demonstrate the use of lambda functions. Note that you should

Kötü taklit olsa da



Dart and Go - Google has started to lose the plot.

- ▶ Diller - syntax ve semantics
- ▶ Space and time

- ▶ Church - λ - motation yok
- ▶ Turing Makinesi - mutation
- ▶ birleştiler
- ▶ Church-Turing thesis

Vision

*It is not the task of the University to offer
what society asks for, but to give what
society needs.*

Edsger W Dijkstra

- eski bir slayt

Vision - eski bir slayt

- ▶ FOSS - 2000
- ▶ Java - 2000
- ▶ Data Driven Design and functional programming - 2003

Bilgisayar Bilimlerinin (eski) Türkiye Bayisinin vizyonun üç (deli) maddesi

- ▶ Java (2000)
- ▶ FOSS (2000)
- ▶ Functional programming (2003)

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maddesi
Java - yep yeniydi (1995)

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maddesi

FOSS:

"We think of Linux as a competitor in the student and hobbyist
market but I really don't think in the commercial market we'll see it
in any significant way." Bill Gates, 2001

Bilgisayar Bilimlerinin (eski) Türkiye Bayisinin vizyonun üç (deli) maddesi FOSS:



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Red Hat accelerates through \$1bn in sales

Shadowman has a big fat bulge

By **Timothy Prickett Morgan** • [Get more from this author](#)

Posted in [Financial News](#), 28th March 2012 23:35 GMT

WIN - A free one year, 25 user licence of Microsoft Office 365!

"We think of Linux as a competitor in the student and hobbyist market but I really don't think in the commercial market we'll see it in any significant way." Bill Gates, 2001

You can't blame Red Hat for wanting to rub it in a little bit as it busted through its first \$1bn year. Yes, *El Reg* knows that numbers are not barriers, but they are milestones, and even if you want to be a party pooper. Red Hat has just become the first company based on open

Bilgisayar Bilimlerinin (eski) Türkiye Bayisinin vizyonun üç (deli)
maddesi
FOSS:
Windows Phone'i unutmayalım...

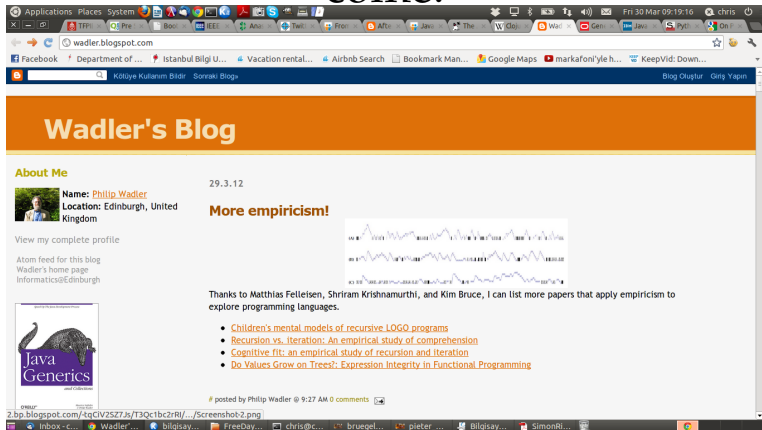
Bilgisayar Bilimlerinin (eski) Türkiye Bayisinin vizyonun üç (deli) maddesi Functional Programming

Bilgisayar Bilimlerinin (eski) Türkiye Bayisinin vizyonun üç (deli)
maddesi
Functional Programming
The future is functional - the time has come.

The future is functional - the time has
come.

- ▶ Scala (who is there?) Martin Odersky
- ▶ Clojure
- ▶ Javascript
- ▶ Whalesong

The future is functional - the time has come.



The screenshot shows a web browser window displaying the homepage of Wadler's Blog. The browser's address bar shows the URL wadler.blogspot.com. The page has an orange header with the title "Wadler's Blog". Below the header, there is an "About Me" section on the left, a date "29.3.12" in the center, and a post titled "More empiricism!" on the right. The "About Me" section includes a profile picture of Philip Wadler, his name, location (Edinburgh, United Kingdom), and a link to his complete profile. The "More empiricism!" post features a line graph and a list of references. The browser's taskbar at the bottom shows various open applications and the system clock.

Wadler's Blog

About Me

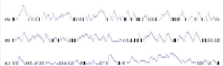
Name: [Philip Wadler](#)
Location: Edinburgh, United Kingdom

View my complete profile

Atom feed for this blog
Wadler's home page
Informatics@Edinburgh

29.3.12

More empiricism!



Thanks to Matthias Felleisen, Shriram Krishnamurthi, and Kim Bruce, I can list more papers that apply empiricism to explore programming languages.

- [Children's mental models of recursive LOGO programs](#)
- [Recursion vs. iteration: An empirical study of comprehension](#)
- [Cognitive fit: an empirical study of recursion and iteration](#)
- [Do Values Grow on Trees?: Expression Integrity in Functional Programming](#)

posted by Philip Wadler @ 9:27 AM 0 comments

2.bp.blogspot.com/t4cIV25Z7Js/T3Qc1bc2rRI/.../Screenshot-2.png

Neden yeni diller? Yeni yaklaşımlar?
Sorunlar var.

Tabii, Ama neden fonksiyonel?

Scala'dan birkaç örnek.

Twitter diyor ki:

“ I think it may just be a property of large systems in dynamic languages, that eventually you end up rewriting your own type system, and you sort of do it badly. You're checking for null values all over the place. ”

Twitter diyor ki:

“ It is a shame to have to write all that when there is a solution that has existed in the world of programming languages for decades now. ”

Twitter diyor ki:

“ .. it was wonderful to use a runtime I was familiar with and be able to use functional combinators and closures and higher order functions, all these things that I've wanted to use more in production systems. ”

Twitter diyor ki:

“ To me, languages like Ruby, Scala, and Python are very high level, because you can write a few lines of code to do what might take ten or twenty lines in Java, or 250 lines in C. ”

Twitter diyor ki:

“ The hardest part was just switching over from the Ruby mentality to the Scala mentality. Trying to think more functionally. Trying to think more immutably. Thinking about static typing for the first time in several years. ”

http://www.artima.com/scalazine/articles/twitter_

The Guardian diyor ki:

“ It took us a while to realise that most of the loops we wrote in Java were actually ‘map’ or ‘flatMap’ ”

<http://www.slideshare.net/tackers/java-to-scala>

Ne var?

- ▶ First class functions -parametre ve sonuç olabilir
- ▶ lambda
- ▶ Static, nested, scope
- ▶ Closures
- ▶ Comprehensions, map, filter, fold ve saire
- ▶ Mutation - yooook
- ▶ (bazen) First class static types

Ufak örnekler:

Bunlar da lazım

- ▶ Program by Design
- ▶ Data Driven design
- ▶ Test Driven Development

Çalışıyor mu?

- ▶ No mutation -> optimisation
- ▶ Higher order -> optimisation
- ▶ Deforesting

Bilgisayar Bilimlerine İhtiyaç var.

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Çünkü....Standart müfredat budur



Pieter Bruegel the Elder, 1568, The blind leading the blind

And if you do not believe me, the news from the
European job market is:
<http://bit.ly/H31VgK>