

Haskell in Debian

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What are Haskell's features?

- It is a **functional** language
- It is **pure**, i.e. side effect free
- It employs **lazy evaluation**
- It is **strongly typed** with type inference
- It can be interpreted or **compiled**
- Large number of **libraries** available centrally
- It is fun to program in.

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This talk addresses you, if...

- you want to use Haskell on Debian.
- you want to maintain Haskell programs.
- you want to maintain Haskell libraries.
- you need to understand Haskell packaging, even if you don't want to.

Hackage, Cabal, ghc-pkg, . . .

- Haskell code is grouped by hierarchical **modules**
Data.Map, Control.Monad,
Graphics.Rendering.OpenGL.GL.PixelRectangles.PixelTransfer
- Modules are grouped into packages, with versions and dependencies
base, bytestring, debian, OpenGL
- ghc-pkg: maintains libraries of installed packages (~ dpkg)
- Cabal: declarative build infrastructure (~ dpkg-buildpackage)
- cabal-install: downloads, builds and installs sources, including dependencies (~ apt-get)
- Hackage: The central repository (~ ftp.debian.org, CPAN)

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Demonstration!

Debian packages of Haskell libraries

From the Cabal package name to the Debian package name

bitarray \Rightarrow	{	haskell-bitarray	the source package
		libghc-bitarray-dev	the code
		libghc-bitarray-doc	the documentation
		libghc-bitarray-prof	the profiling data

cabal-install can be used on Debian as well, but may require recompilation after upgrades.

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Haskell package dependencies

- ghc provides zero ABI stability:
Every depending package, even indirectly depending ones, need to be recompiled.
- Only static linking supported in Debian
- ghc-pkg calculates a hash of the package interface and enforces that the dependencies' hashes are correct
- bitarray-0.0.1-1ae06ad8110db9f0934c8e461a56c77b \implies
libghc-bitarray-dev would provide
libghc-bitarray-dev-0.0.1-1ae06

Consequences of the hash-based provides

Good

- Haskell packages installed from Debian are always consistent

Bad

- lots of rebuilds/binNMUs required
- libraries often temporarily uninstallable
- testing migration hard

Binaries (hpodder, git-annex, arbt) are not affected.

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Let's package a Haskell library

Resources:

- <http://wiki.debian.org/Haskell>
- <http://pkg-haskell.alioth.debian.org/haskell-policy> (outdated)
- <http://darcs.debian.org/pkg-haskell/tools/template-debian/>
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In Debian

- binNMUing of arch:all packages
- source only uploads

From upstream

- changelog files

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What we skipped today

Learning all about. . .

- More about data types
- Polymorphism
- Type classes
- Monads
- Foreign Function Interface

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Conclusion

Packaging Haskell for Debian

- is easy
- but could need more manpower

Therefore, if you are interested, please join

`#haskell-debian` on IRC

and

`debian-haskell@lists.debian.org` mailing list!

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