Tastydoc

A documentation tool for Dotty using TASTy files

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19th June 2019

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What is Tastydoc ?

- Documentation tool for Dotty
- Uses TASTy files
- Outputs Markdown

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Accessible information

- Annotations, modifiers (including scope modifiers), parameters, type parameters, and return types
- Members, parents, constructors, known subclasses and companion
- User documentation (Wiki-style & Markdown)
- Reference for linking

TASTy

- Extract information from them
- Independent from the compiler

Markdown

- Easy to edit by hand & preview
- Easy to add own files
- Easy for the user to make links
- Git hosting services have built-in preview
- Easy to convert to another format (HTML, PDF, etc.)

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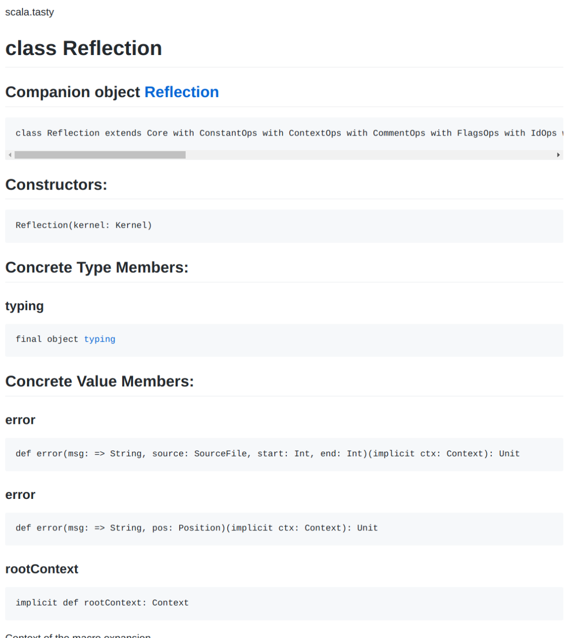
Example: scala.tasty.Reflection



scala.tasty

class Reflection

Companion object Reflection

```
class Reflection extends Core with ConstantOps with ContextOps with CommentOps with FlagsOps with IdOps
```

Constructors:

```
Reflection(kernel: Kernel)
```

Concrete Type Members:

typing

```
final object typing
```

Concrete Value Members:

error

```
def error(msg: => String, source: SourceFile, start: Int, end: Int)(implicit ctx: Context): Unit
```

error

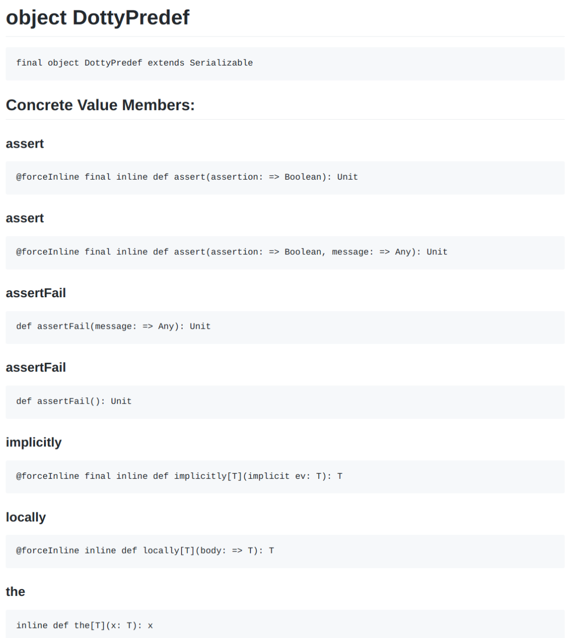
```
def error(msg: => String, pos: Position)(implicit ctx: Context): Unit
```

rootContext

```
implicit def rootContext: Context
```

Context of the macro expansion

Example: dotty.DottyPredef



object DottyPredef

```
final object DottyPredef extends Serializable
```

Concrete Value Members:

assert

```
@forceInline final inline def assert(assertion: => Boolean): Unit
```

assert

```
@forceInline final inline def assert(assertion: => Boolean, message: => Any): Unit
```

assertFail

```
def assertFail(message: => Any): Unit
```

assertFail

```
def assertFail(): Unit
```

implicitly

```
@forceInline final inline def implicitly[T](implicit ev: T): T
```

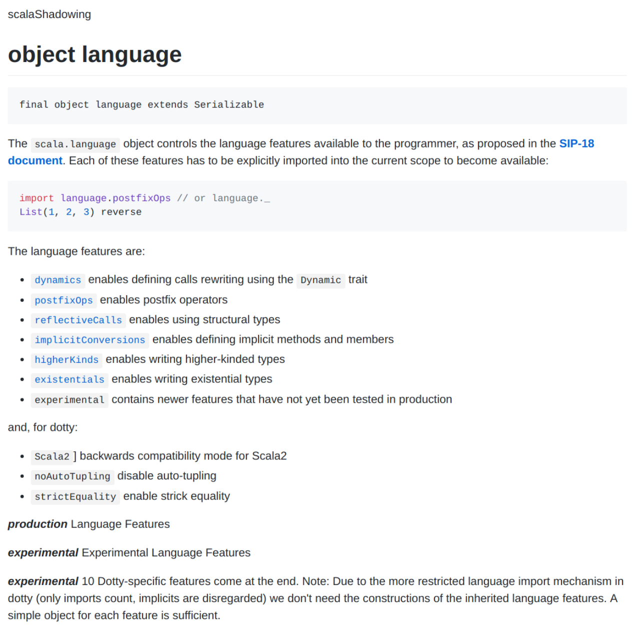
locally

```
@forceInline inline def locally[T](body: => T): T
```

the

```
inline def the[T](x: T): x
```

Example: scalaShadowing.language



scalaShadowing

object language

```
final object language extends Serializable
```

The `scala.language` object controls the language features available to the programmer, as proposed in the **SIP-18 document**. Each of these features has to be explicitly imported into the current scope to become available:

```
import language.postfixOps // or language._
List(1, 2, 3) reverse
```

The language features are:

- `dynamics` enables defining calls rewriting using the `Dynamic` trait
- `postfixOps` enables postfix operators
- `reflectiveCalls` enables using structural types
- `implicitConversions` enables defining implicit methods and members
- `higherKinds` enables writing higher-kinded types
- `existentials` enables writing existential types
- `experimental` contains newer features that have not yet been tested in production

and, for dotty:

- `Scala2`] backwards compatibility mode for Scala2
- `noAutoTupling` disable auto-tupling
- `strictEquality` enable strick equality

production Language Features

experimental Experimental Language Features

experimental 10 Dotty-specific features come at the end. Note: Due to the more restricted language import mechanism in dotty (only imports count, implicits are disregarded) we don't need the constructions of the inherited language features. A simple object for each feature is sufficient.

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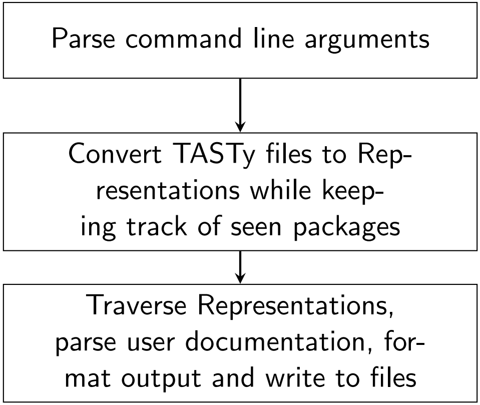
Workflow


Parse command line arguments
Convert TASTy files to Representations while keeping track of seen packages
Traverse Representations, parse user documentation, format output and write to files

Representation

- Contain information about an entity
- Easy to use, no knowledge of TASTy required
- Code is easy to maintain
- Similar to Dottydoc Entity $\rightarrow$can reuse Dottydoc code

Reference

- Contain information about types
- Necessary for linking
- Inspired by Dottydoc

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Extra features

- Scope modifiers
- Known subclasses
- Refined types

Bugs fixed

- Buggy output

```
final val BITS_PER_LAZY_VAL : [31m2L[0m
```

- Wrong parents
- Annotations
- Compiler artifacts

Bugs fixed

- Buggy output

```
final val BITS_PER_LAZY_VAL : [31m2L[0m
```

- Wrong parents
- Annotations
- Compiler artifacts
- potentially program breaking code

```
def parents: List[Entity] = this :: this.parents
```

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Problems

- Markdown escaping
- Linking inside code blocks
- Sections
- IDs for linking

Further work

- Markdown escaping
- Type lambdas
- Complex types

```
class Graph {
    type Node = Int
}
def linkingGraph(g: Graph): g.Node = ???
```

- Default values
- Extra user-documentation parsing
- HTML/CSS

Questions ?