Dickinson Language Reference

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0.1 Introduction

Dickinson is a language for generative literature targeting English. This reference specifies the syntax and semantics of the language.

0.2 Syntax

0.2.1 Lexical Structure

Dickinson programs have the following lexical structure:

$$
\begin{aligned}
comment &=: ;.^*\$ \\
identifier &=: [\texttt{a}-\texttt{z}][\texttt{a}-\texttt{zA}-\texttt{Z0}-\texttt{9}]^* \\
typeIdentifier &=: [\texttt{A}-\texttt{Z}][\texttt{a}-\texttt{zA}-\texttt{Z0}-\texttt{9}]^* \\
moduleIdentifier &=: (identifier.)^* identifier \\
include &=: : \texttt{include} \\
def &=: : \texttt{def} \\
lambda &=: : \texttt{lambda} \\
tydecl &=: \texttt{tydecl} \\
arrow &=: (\rightarrow |- >) \\
probability &=: ([\texttt{0}-\texttt{9}]^+ | [\texttt{0}-\texttt{9}]^+.[\texttt{0}-\texttt{9}]^*)
\end{aligned}
$$

0.2.2 Syntax Tree

⟨*pattern*⟩ ::= `_`
| ⟨*identifier*⟩
| ⟨*typeIdentifier*⟩

⟨*type*⟩ ::= `text`
| → ⟨*type*⟩ ⟨*type*⟩
| (⟨*type*⟩ (, ⟨*type*⟩)*)
| ⟨*identifier*⟩

⟨*expression*⟩ ::= ⟨*string*⟩
| (`let:` [(⟨*identifier*⟩ ⟨*expression*⟩)+] ⟨*expression*⟩)
| (`bind:` [(⟨*identifier*⟩ ⟨*expression*⟩)+] ⟨*expression*⟩)
| (⟨*expression*⟩ (, ⟨*expression*⟩)*)
| (`:flatten` ⟨*expression*⟩)
| (⟨*expression*⟩ : ⟨*type*⟩)
| ⟨*typeIdentifier*⟩
| (`:pick` ⟨*identifier*⟩)
| (`>` ⟨*expression*⟩*)
| (`:oneof` (`|` ⟨*expression*⟩)+)
| (`:branch` (`|` ⟨*probability*⟩ ⟨*expression*⟩)+)