

Dickinson Language Reference

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0.1 Introduction

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

0.2 Syntax

0.2.1 Lexical Structure

Dickinson programs have the following lexical structure:

$\langle comment \rangle ::= ;.*\$$

$\langle identifier \rangle ::= [a-z][A-Za-z0-9]^*$

$\langle typeIdentifier \rangle ::= [A-Z][A-Za-z0-9]^*$

$\langle moduleIdentifier \rangle ::= (\langle identifier \rangle .)^* \langle identifier \rangle$

$\langle probability \rangle ::= ([0-9]+|[0-9]+.[0-9]^*)$

0.2.2 Syntax Tree

$\langle pattern \rangle ::= _$
| $\langle identifier \rangle$
| $\langle typeIdentifier \rangle$
| $\langle pattern \rangle (| \langle pattern \rangle)^+$
| $(\langle pattern \rangle (, \langle pattern \rangle)^+)$

$\langle type \rangle$	$::= \text{text}$ $ (\rightarrow \langle type \rangle \langle type \rangle)$ $ (\langle type \rangle (, \langle type \rangle)^*)$ $ \langle identifier \rangle$
$\langle expression \rangle$	$::= \langle string \rangle$ $ (\text{let: } [(\langle identifier \rangle \langle expression \rangle)^+] \langle expression \rangle)$ $ (\text{bind: } [(\langle identifier \rangle \langle expression \rangle)^+] \langle expression \rangle)$ $ (\langle expression \rangle (, \langle expression \rangle)^*)$ $ (:flatten \langle expression \rangle)$ $ (\langle expression \rangle : \langle type \rangle)$ $ \langle typeIdentifier \rangle$ $ (:pick \langle identifier \rangle)$ $ (> \langle expression \rangle^*)$ $ (:oneof (\langle expression \rangle)^+)$ $ (:branch (\langle probability \rangle \langle expression \rangle)^+)$ $ (\$ \langle expression \rangle \langle expression \rangle)$ $ (:match \langle expression \rangle [(\langle pattern \rangle \langle expression \rangle)^+])$
$\langle declaration \rangle$	$::= (:def \langle identifier \rangle \langle expression \rangle)$ $ \text{tydecl } \langle identifier \rangle = \langle typeIdentifier \rangle (\langle typeIdentifier \rangle)^+$
$\langle include \rangle$	$::= (:include \langle moduleIdentifier \rangle)$
$\langle module \rangle$	$::= \langle include \rangle^* \% - \langle declaration \rangle^*$