

Assignment 2

Ruofei HUANG(z5141448) Anqi ZHU(z5141541)

May 12, 2018

1 Task 1

According to the specified problem statement in the assignment, we could describe the syntactic data type *Dict* as below. The encapsulated state is a dictionary word set W .

$$Dict = (W = \phi, \left(\begin{array}{l} \mathbf{proc} \text{ addword}^W(\mathbf{value} \ w) \cdot b, W : [\text{TRUE}, b = b_0 \wedge W = W_0 \cup \{w\}] \\ \mathbf{func} \text{ checkword}^W(\mathbf{value} \ w) : \mathbb{B} \cdot \mathbf{var} \ b \cdot b, W : [\text{TRUE}, b = (w \in W_0)]; \mathbf{return} \ b \\ \mathbf{proc} \text{ delword}^W(\mathbf{value} \ w) \cdot b, W : [w \in W, b = b_0 \wedge W = W_0 \setminus \{w\}] \end{array} \right))$$

2 Task 2

Now we would like to refine *Dict* to a second data type, *DictA*, as specified in the assignment. In *DictA*, W is replaced by a trie t .