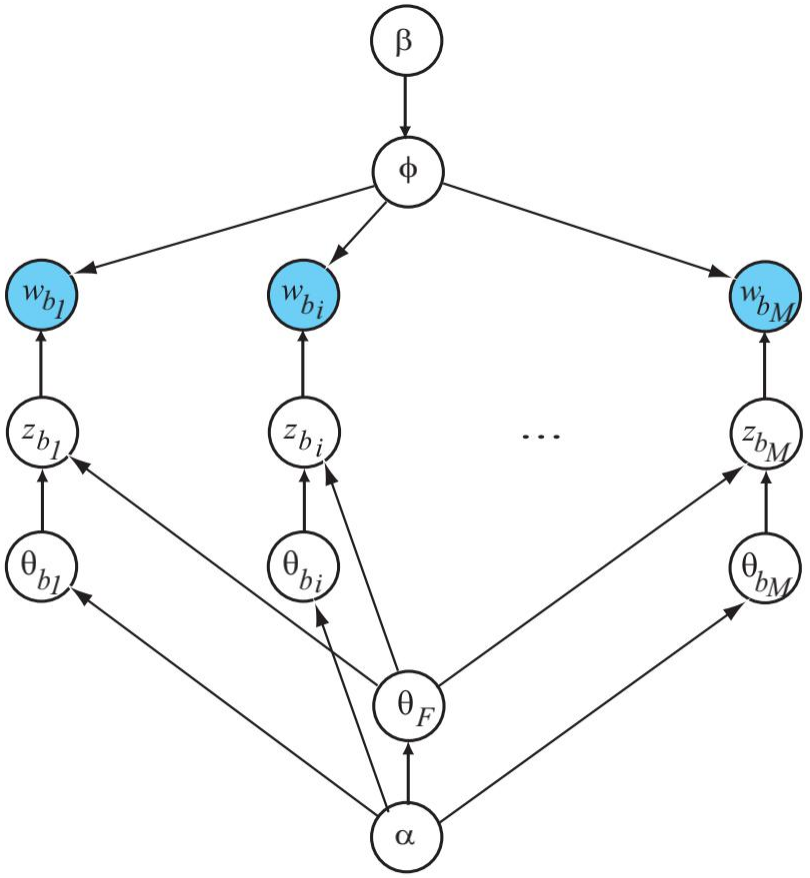
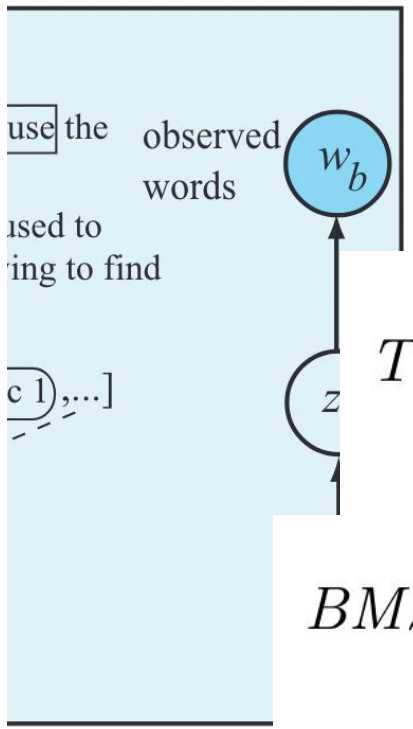
《Duplicate Bug Report Detection with a Combination of Information Retrieval and Topic Modeling》	2012	ASE
《Predicting Bug-Fixing Time: An Empirical Study of Commercial Software Projects》	2013	ICSE
《iFixR: bug report driven program repair》	2019	ESEC/FSE

Duplicate Bug Report Detection with a Combination of Information Retrieval and ing

2012 ASE





$$IDF(t) = log\frac{N}{N_d}$$

$$TF_D(d,t) = \sum_{f=1}^{F} \frac{w_f \times occurrences(d[f],t)}{1 - b_f + \frac{b_f \times length_f}{average\_length_f}}$$

$$BM25F(d,q) = \sum_{t \in d \cap q} IDF(t) \times \frac{TF_D(d,t)}{c + TF_D(d,t)}$$

ing [6]

$$\text{topicsim}(b_{new}, G) = \max_{b_i \in G}(\text{topicsim}(b_{new}, b_i))$$

$$y = \alpha_1 * y_1 + \alpha_2 * y_2$$

Predicting Bug-Fixing Time: An Empirical Study of Commercial Software Projects

2013 ICSE

- ***How many bugs can be fixed?***
- ***How much time is required to fix these bugs?***

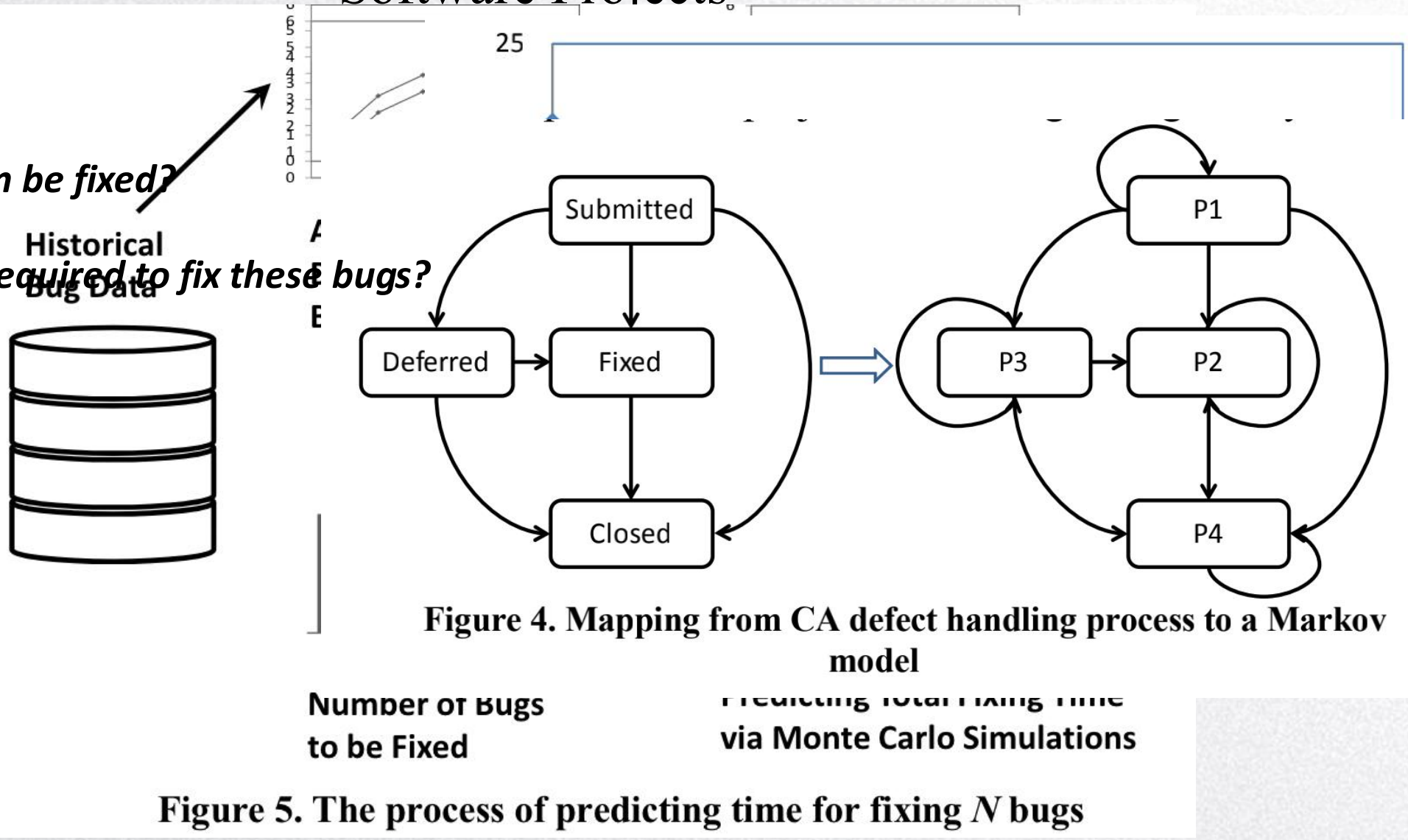


Figure 4. Mapping from CA defect handling process to a Markov model

Figure 5. The process of predicting time for fixing *N* bugs

iFixR: bug report driven program repair

2019 ESEC/FSE

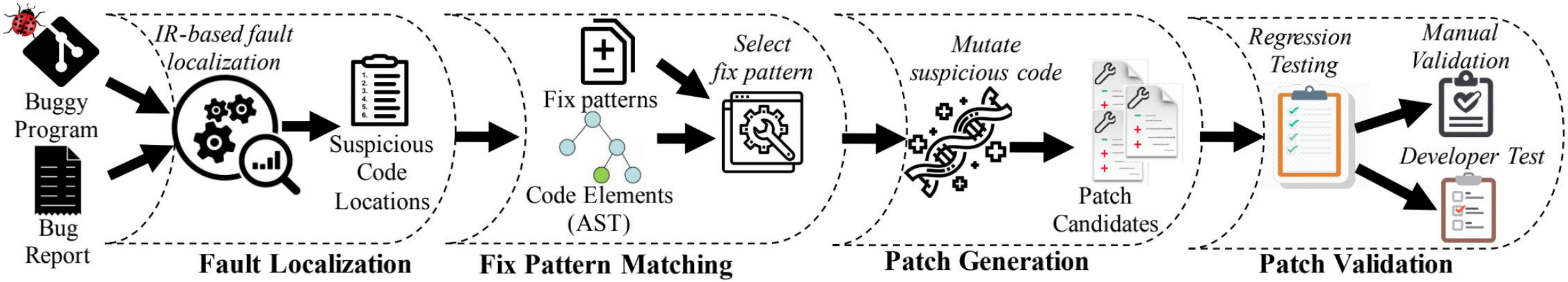


Figure 2: The iFixR Prog

D&C

" Liu et al. reported that the following specific AST statement nodes were significantly more prone to be faulty than others. "

Table 4: Fix patterns implemented in iFixR.

Pattern description	used by*	Pattern description	used by*
Insert Cast Checker	Genesis	Mutate Literal Expression	SimFix
Insert Null Pointer Checker	NPEFix	Mutate Method Invocation	ELIXIR
Insert Range Checker	SOFix	Mutate Operator	jMutRepair
Insert Missed Statement	HDRepair	Mutate Return Statement	SketchFix
Mutate Conditional Expression	ssFix	Mutate Variable	CapGen
Mutate Data Type	AVATAR	Move Statement(s)	PAR
Remove Statement(s)	FixMiner		

* We mention only one example tool even when several tools implement it.

```
+  if (exp instanceof T) {
       ...(T) exp...; ......
+  }
```

THANK YOU FOR YOUR LISTENING.

谢谢您的聆听