

Un framework multi-linguaggio per l'identificazione delle dipendenze del codice sorgente

Relatore: Prof.ssa Francesca Arcelli Fontana
Correlatore: Dr. Darius Sas

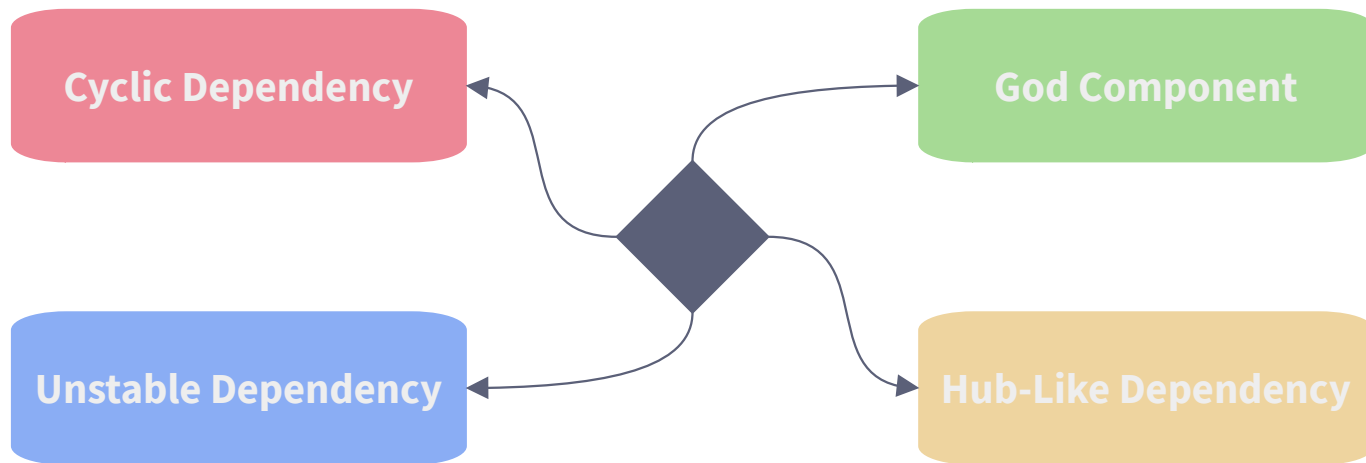
Candidato: Francesco Refolli
Matricola: 865955

Arcan

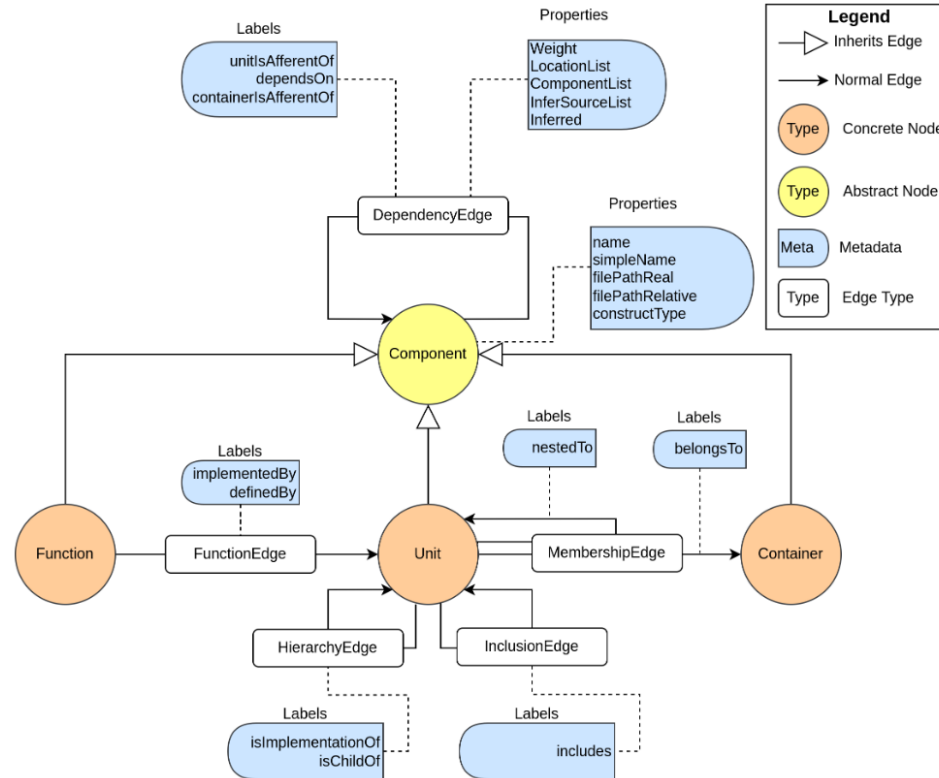
Costruzione del
Grafo delle Dipendenze

Analisi delle
Dipendenze

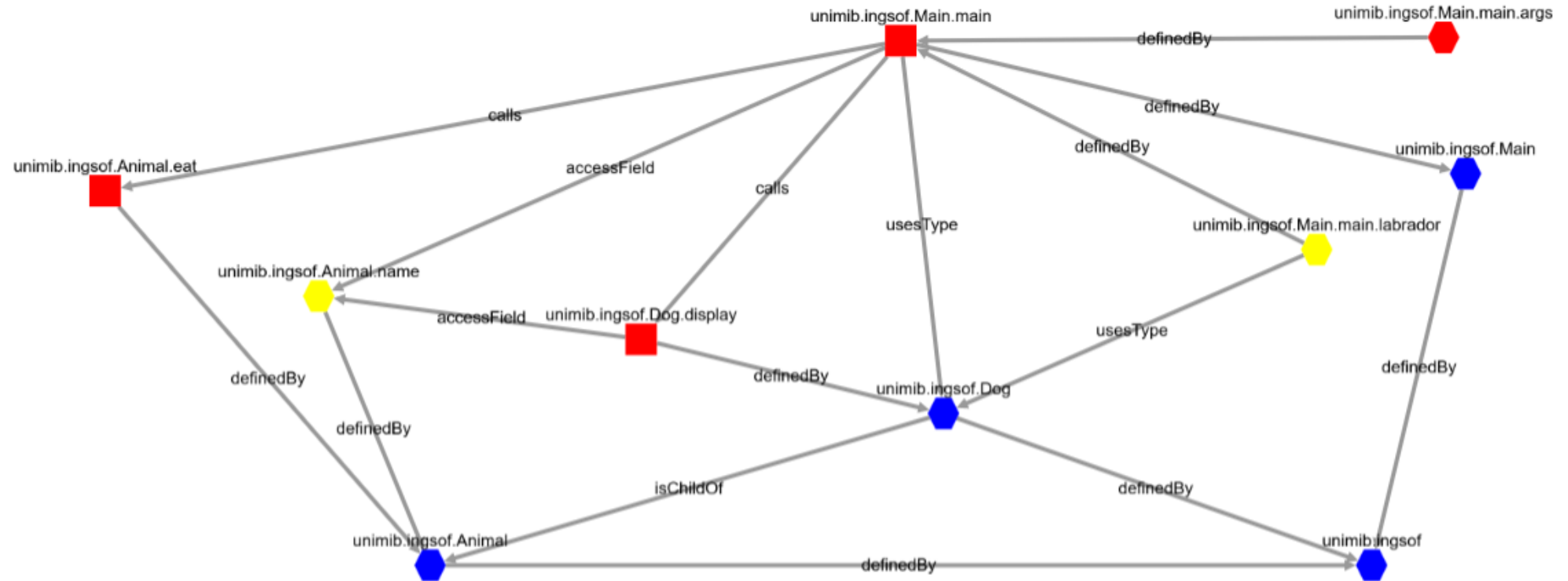
Identificazione degli
Architectural Smells



Arcan

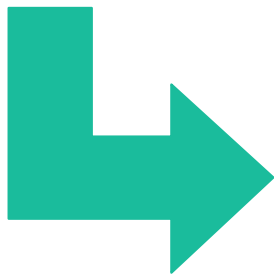


Dependency Graph



Tree Sitter

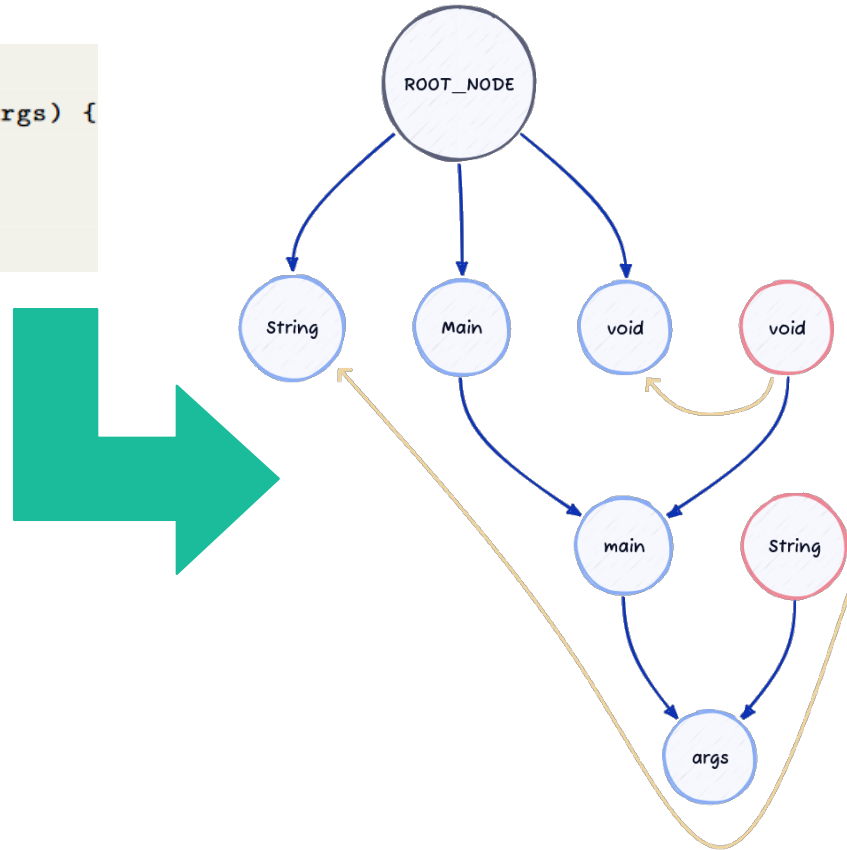
```
class Main {  
  public static void main(String[] args) {  
    // comment  
  }  
}
```



```
(program  
  (class_declaration  
    name: (identifier)  
    body: (class_body  
      (method_declaration  
        (modifiers)  
        type: (void_type)  
        name: (identifier)  
        parameters: (formal_parameters  
          (formal_parameter  
            type: (array_type  
              element: (type_identifier)  
              dimensions: (dimensions))  
            name: (identifier)))  
          body: (block  
            (line_comment))))))
```

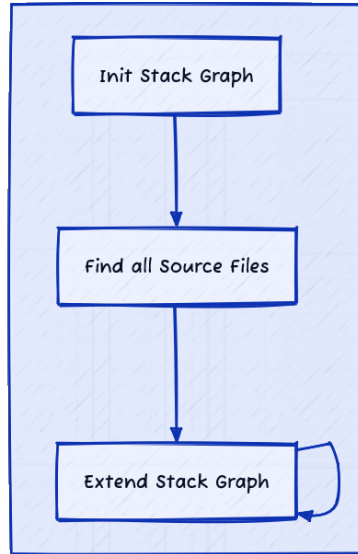
Stack Graph

```
class Main {  
    public static void main(String[] args) {  
        // comment  
    }  
}
```

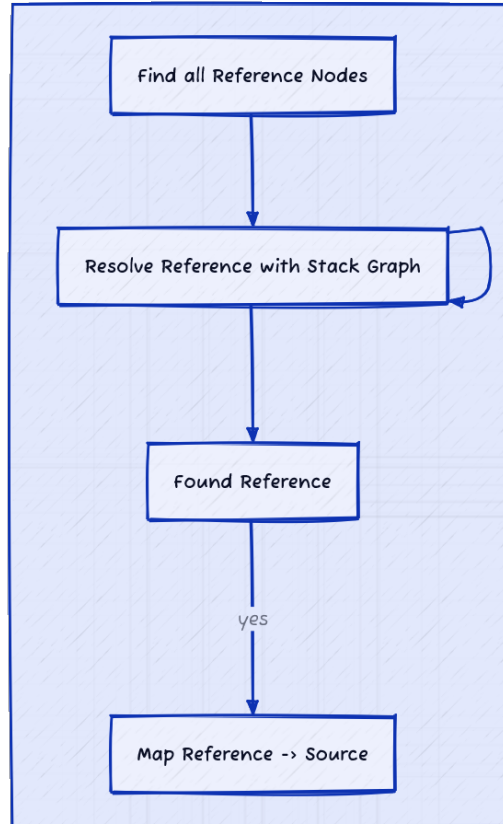


Costruzione del Dependency Graph

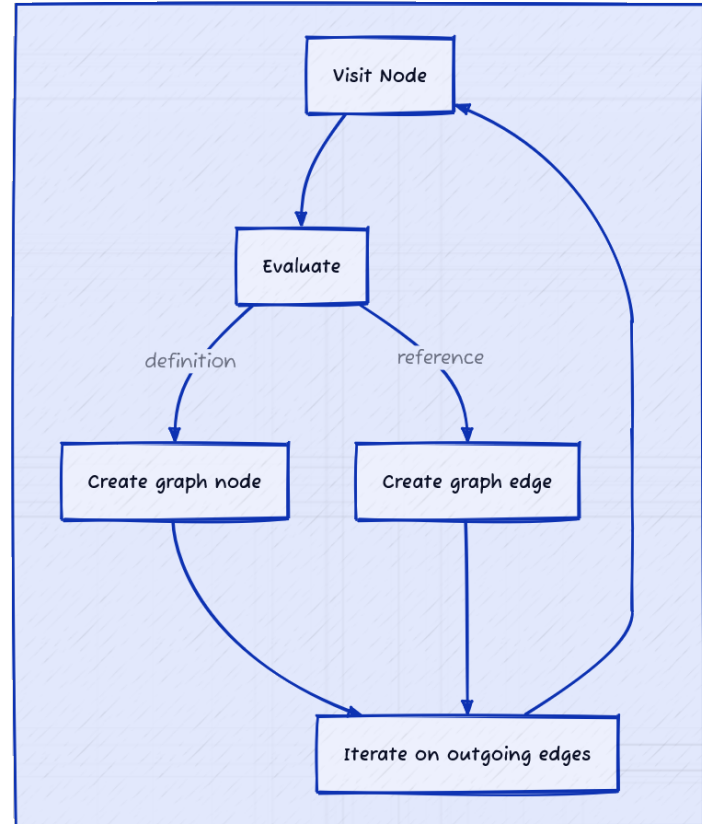
Building Stack Graph



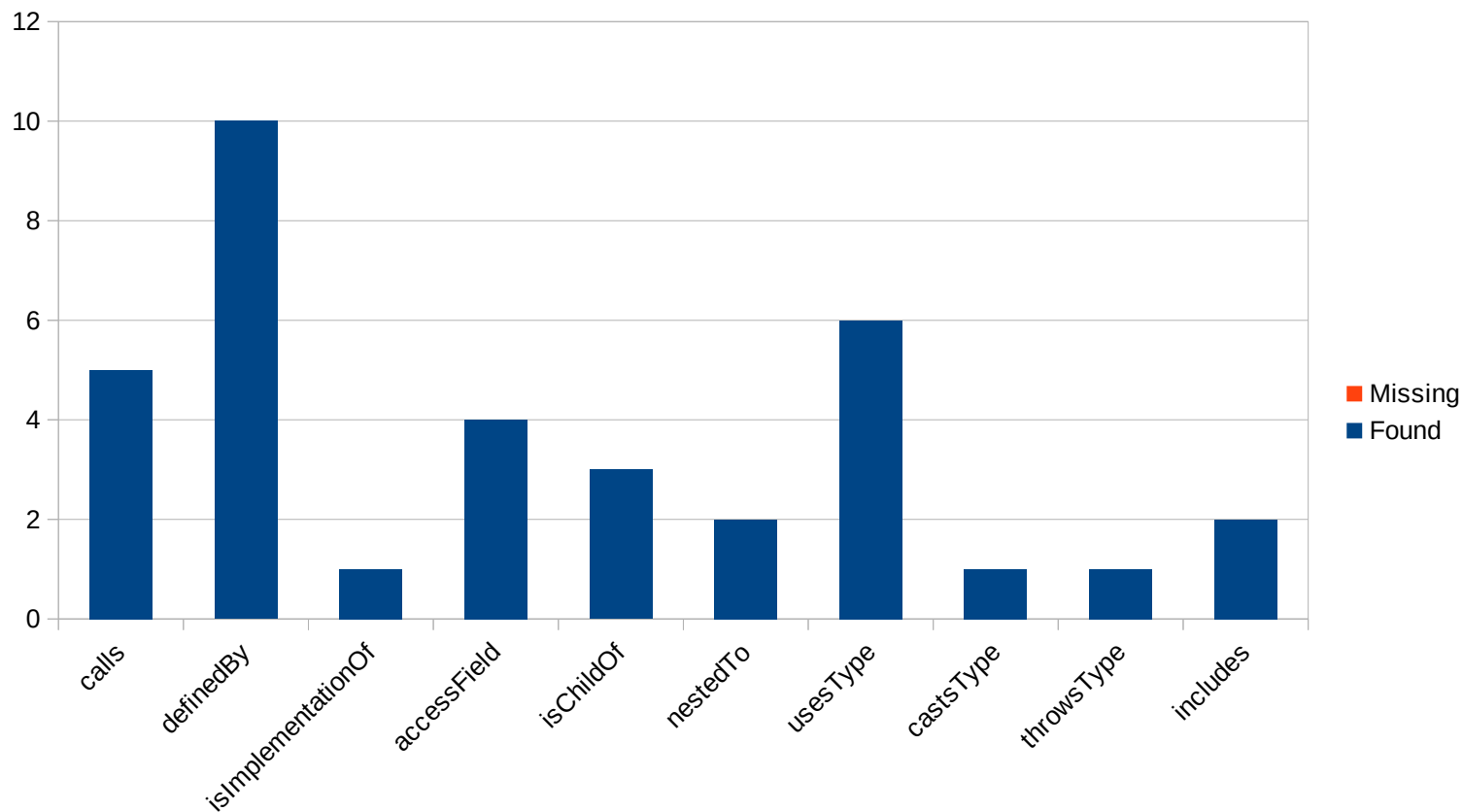
Resolving References



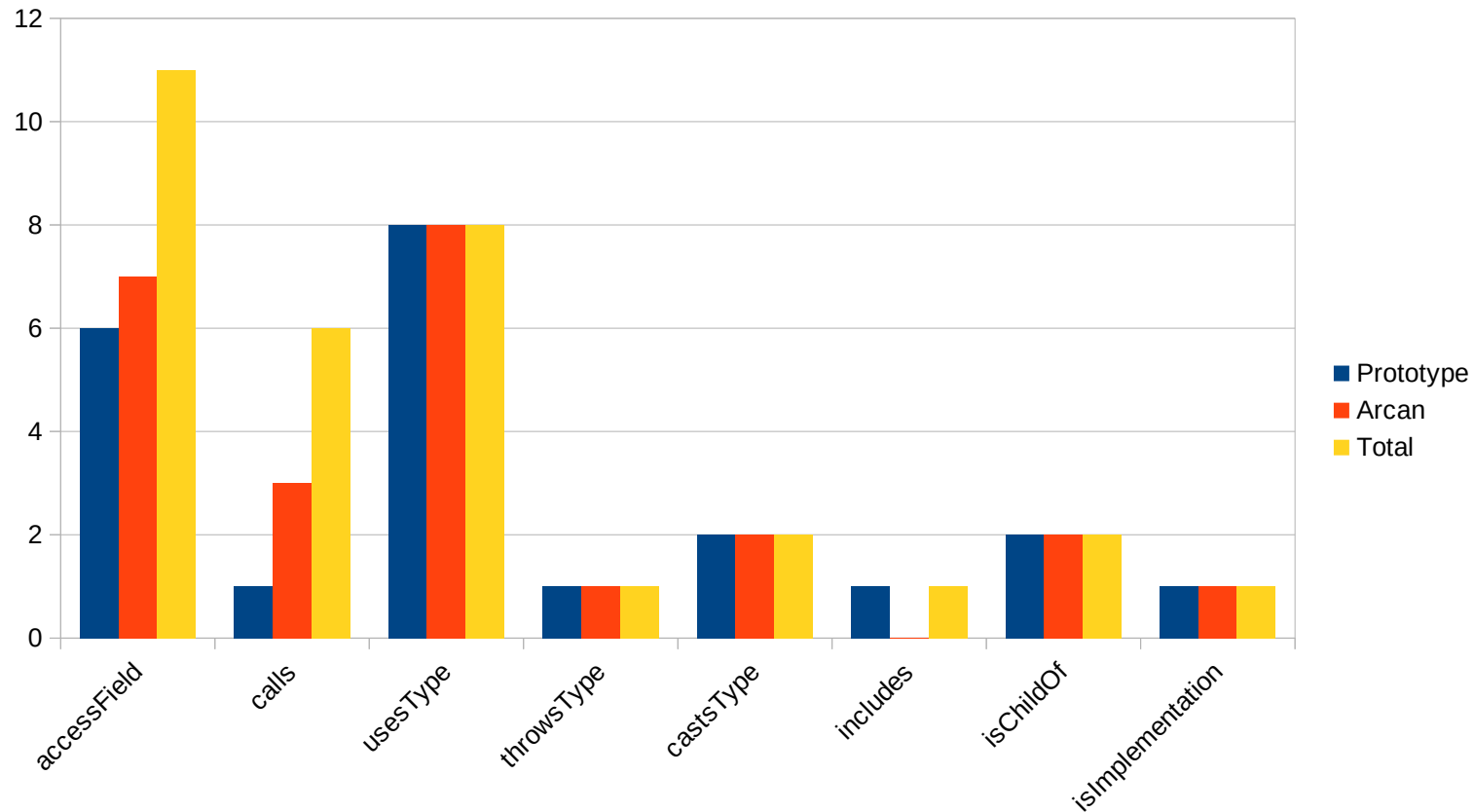
Building DepGraph Graph



Validazione - test ad hoc



Validazione - Benchmark



Comparazione con Arcan

progetto	software	tempo minimo	tempo massimo	tempo medio
guava	Prototipo	N/A	N/A	N/A
guava	Arcan	N/A	N/A	120~
junit4	Prototipo	65,82	69,07	65,88
junit4	Arcan	13,850	17,079	14,611
junit5	Prototipo	132,87	134,75	134,44
junit5	Arcan	42,542	47,613	44,186
antlr4	Prototipo	171,65	175,49	172,64
antlr4	Arcan	19,222	20,140	19,691
fastjson	Prototipo	N/A	N/A	N/A
fastjson	Arcan	66,932	71,094	69,071

Conclusioni

- Parallelizzazione
- Grammatiche TSG ad hoc
- Conflitti di reference
- Librerie standard e di terze parti
- Dimensioni dello Stack Graph
- Analisi Differenziali

GRAZIE PER L'ATTENZIONE

Refolli Francesco. 865955