

Composition de métriques logicielles

UQAM | Département d'informatique

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The image shows a presentation slide with a light blue background. In the top right corner, there is a logo for 'ENCART CĂRĂRA' which includes a Creative Commons license icon (CC BY-NC-SA). The main title of the slide is 'Pragmatic Design Quality Assessment' in a large, black, sans-serif font. Below the title, the names of the authors are listed: 'Tudor Gîrba' (University of Bern, Switzerland), 'Michele Lanza' (University of Lugano, Switzerland), and 'Radu Marinescu' (Politehnica University of Timisoara, Romania). At the bottom left, the logo for 'UQAM | Département d'informatique' is visible. At the bottom right, there is a line of text in French: 'Cette capsule est intensivement basée sur ce tutoriel'.

En tant que développeur ...



Metric	Value
LOC	35175
NOM	3618
NOC	384
CYCLO	5579
NOP	19
CALLS	15128
FANOUT	8590
AHH	0.12
ANDC	0.31

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Identifier des défauts de conception

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Un **BLOB** (ou **classe Dieu**) tend à **centraliser toute l'intelligence** du système, à **tout faire** et à **utiliser** des données en provenance de **classes purement structurelles**



Identifier des défauts de conception

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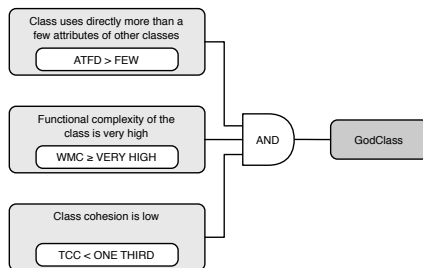


- Un BLOB :
 - Centralise toute l'intelligence du système
 - Fait tout
 - Utilise des données de classes structurelles
- Un BLOB :
 - Est complexe
 - N'est pas cohésif
 - Utilise des données externes

A **God Class** centralizes too much intelligence in the system.

Lanza, Marinescu 2006

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Access To Foreign Data (ATFD)

Class uses directly more than a few attributes of other classes
ATFD > FEW

Weighted Method Count (WMC)

Functional complexity of the class is very high
WMC ≥ VERY HIGH

Tight Class Cohesion (TCC)

Class cohesion is low
TCC < ONE THIRD



GodClass

Problème de conception

Composition de métrique

Problème : Comment définir les seuils ?

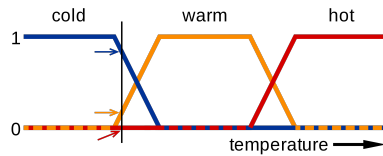
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Class uses directly more than a few attributes of other classes
ATFD > FEW

Functional complexity of the class is very high
WMC ≥ VERY HIGH

Class cohesion is low
TCC < ONE THIRD



Utilisation de logique floue

Déterminer les seuils est un exercice difficile

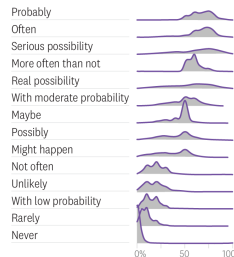
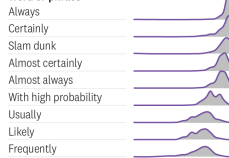
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How People Interpret Probabilistic Words

"Always" doesn't always mean always.

Distribution of responses according to respondents' estimate of likelihood
Word or phrase



Un autre exemple : La jalousie

Access To Foreign Data (ATFD)

Method uses directly more than a few attributes of other classes

ATFD > FEW

Locality of Attribute Access (LAA)

Method uses far more attributes of other classes than its own

LAA < ONE THIRD

Foreign Data Providers (FDP)

The used "foreign" attributes belong to very few other classes

FDP ≤ FEW

Une méthode est dite "**jalouse**" si elle est plus intéressée par les données des autres classes que par celles de la classe qui la contient.



On peut aussi composer des règles

More than a few public data

NOAP + NOAM > FEW

Complexity of class is not high

WMC < HIGH

Class has many public data

NOAP + NOAM > MANY

Complexity of class is not very high

WMC < VERY HIGH

Data Classes are dumb data holders.

Fragments réutilisables pour aider la lecture

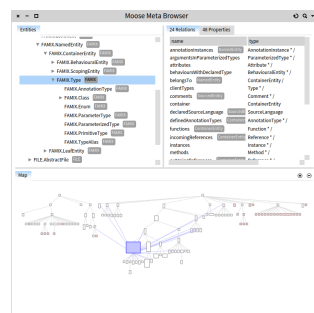
Class reveals many attributes and is not complex

Interface of class reveals data rather than offering services

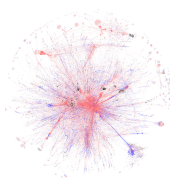
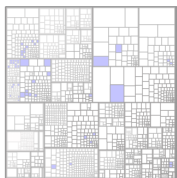
WOC < ONE THIRD

Class reveals many attributes and is not complex

Data Class



Exemple :
L'environnement MOOSE



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Démonstration
Sonar2ube

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LIVE

Utiliser des métriques
nécessite du bon sens

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BREAKING NEWS

ABUS SUR LES CONGÉS PAYÉS

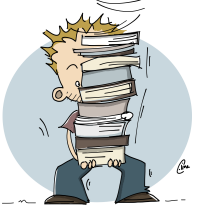
14:49 40% DES ABSENCES AU TRAVAIL ONT LIEU LE LUNDI OU LE VENDREDI

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<https://mosser.github.io/>



<https://ace-design.github.io/>

Abonne toi à la chaine,
et met un pouce bleu !



