Evolution of Type-1 Clones

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SCAM'09

9th IEEE International Working Conference
on Source Code Analysis and Manipulation

September 20th 2009

Software Clones

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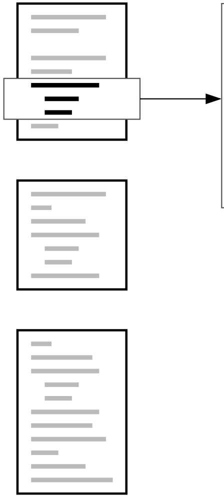

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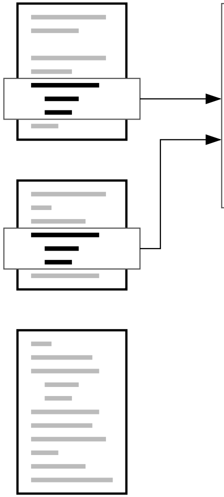

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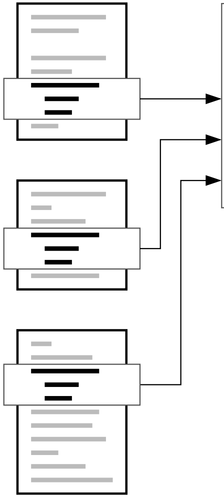

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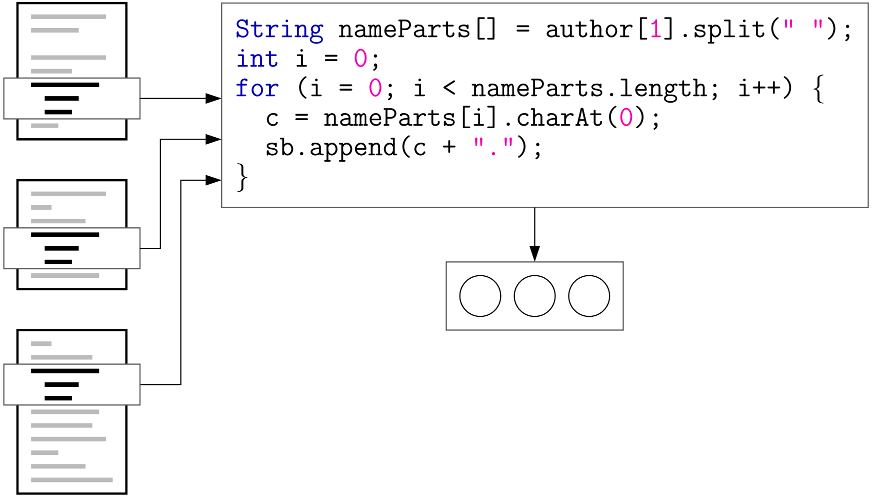

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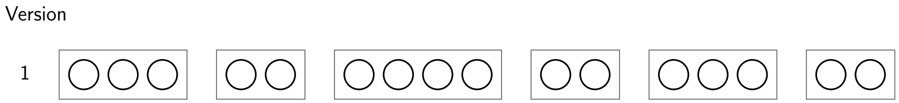
- Reduce computational effort

Clone Evolution Model



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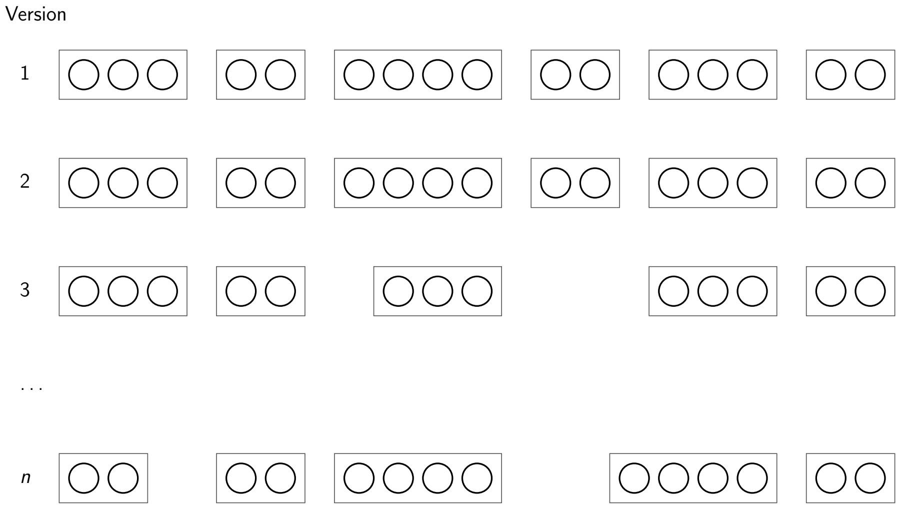

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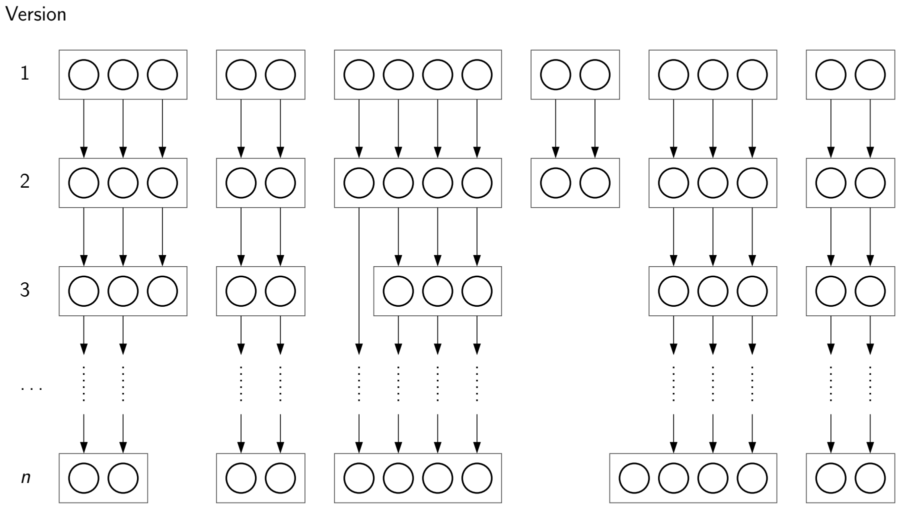

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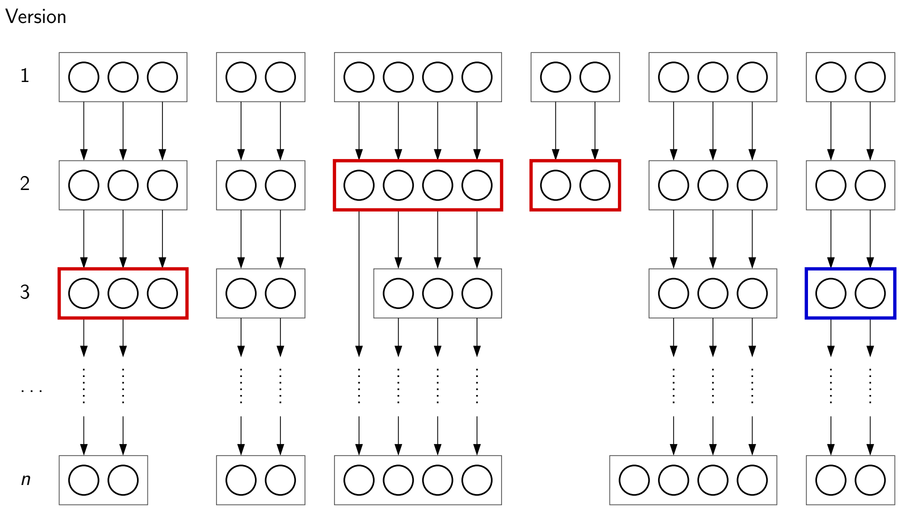

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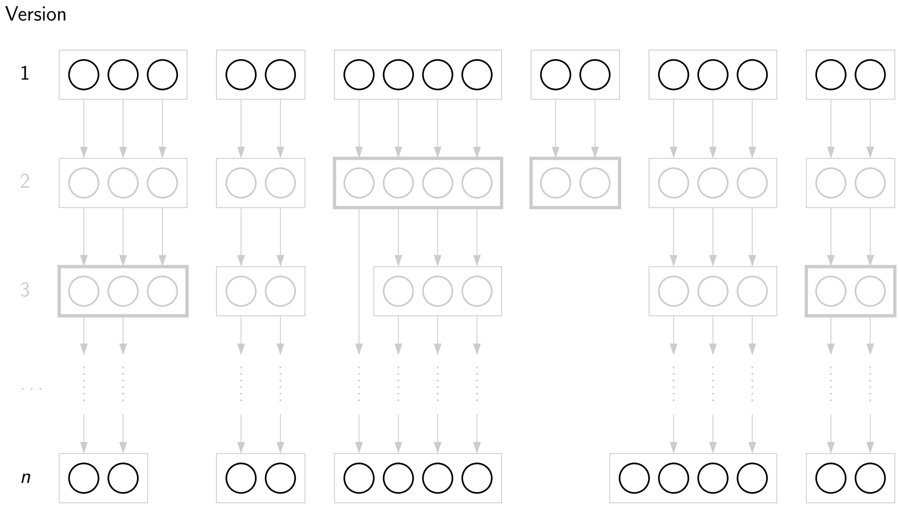
$\rightarrow$ 3 programming languages (C++, Java, C)

Clone Ratio



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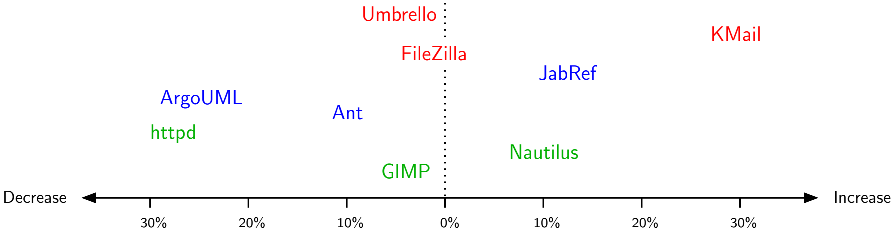

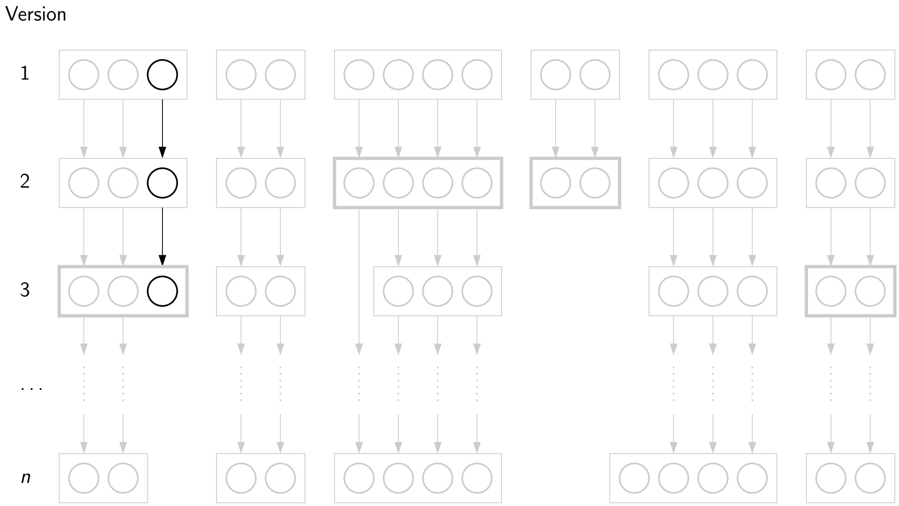
Version
1
2
3
...
n

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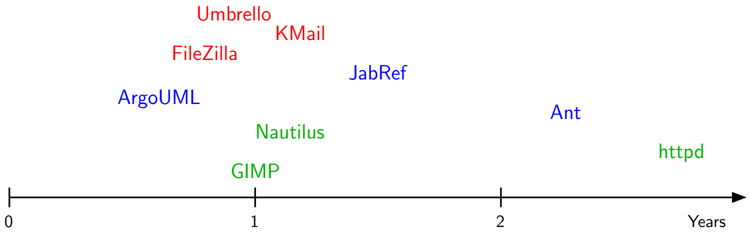
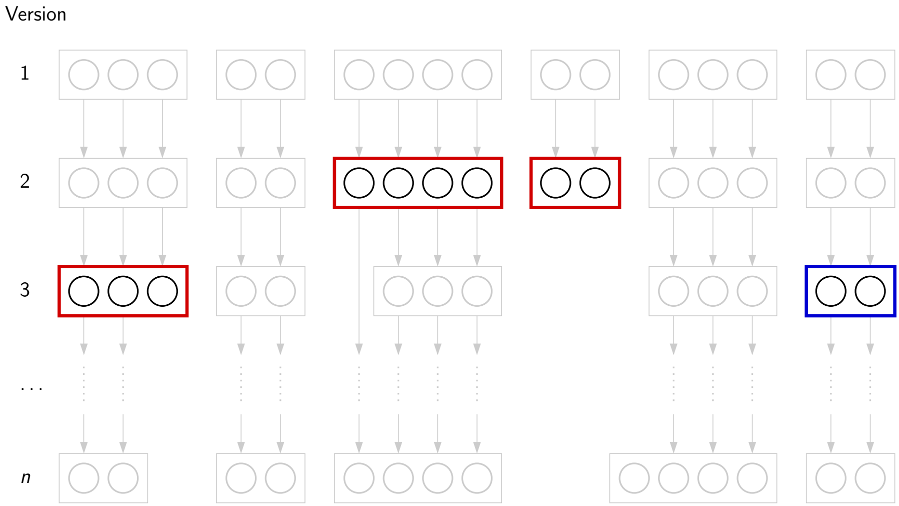


Inconsistent Changes



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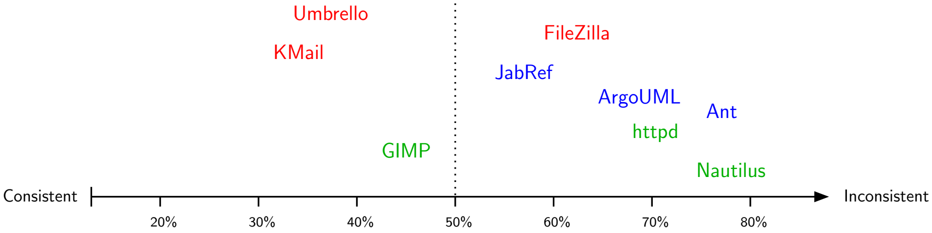

“The harmfulness of clones cannot be judged without considering their evolution.”

L. Aversano, L. Cerulo, and M. Di Penta. How clones are maintained: An empirical study. In *Proceedings of the 11th European Conference on Software Maintenance and Reengineering*, pages 81–90. IEEE Computer Society, 2007.

M. Kim, V. Sazawal, D. Notkin, and G. C. Murphy. An empirical study of code clone genealogies. In *Proceedings of the Joint 10th European Software Engineering Conference and the 13th ACM SIGSOFT Symposium on the Foundations of Software Engineering*, pages 187–196. ACM, 2005.

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