

# Is Clone Code more stable than Non-Cloned Code?

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# Cloned Code

- Can cause problems during maintenance
- A lot of clone detection techniques exist
- If cloned code is changed often, it requires more attention and is more expensive
- If cloned code is more stable, its maintenance costs will be lower
- No data on stability exist

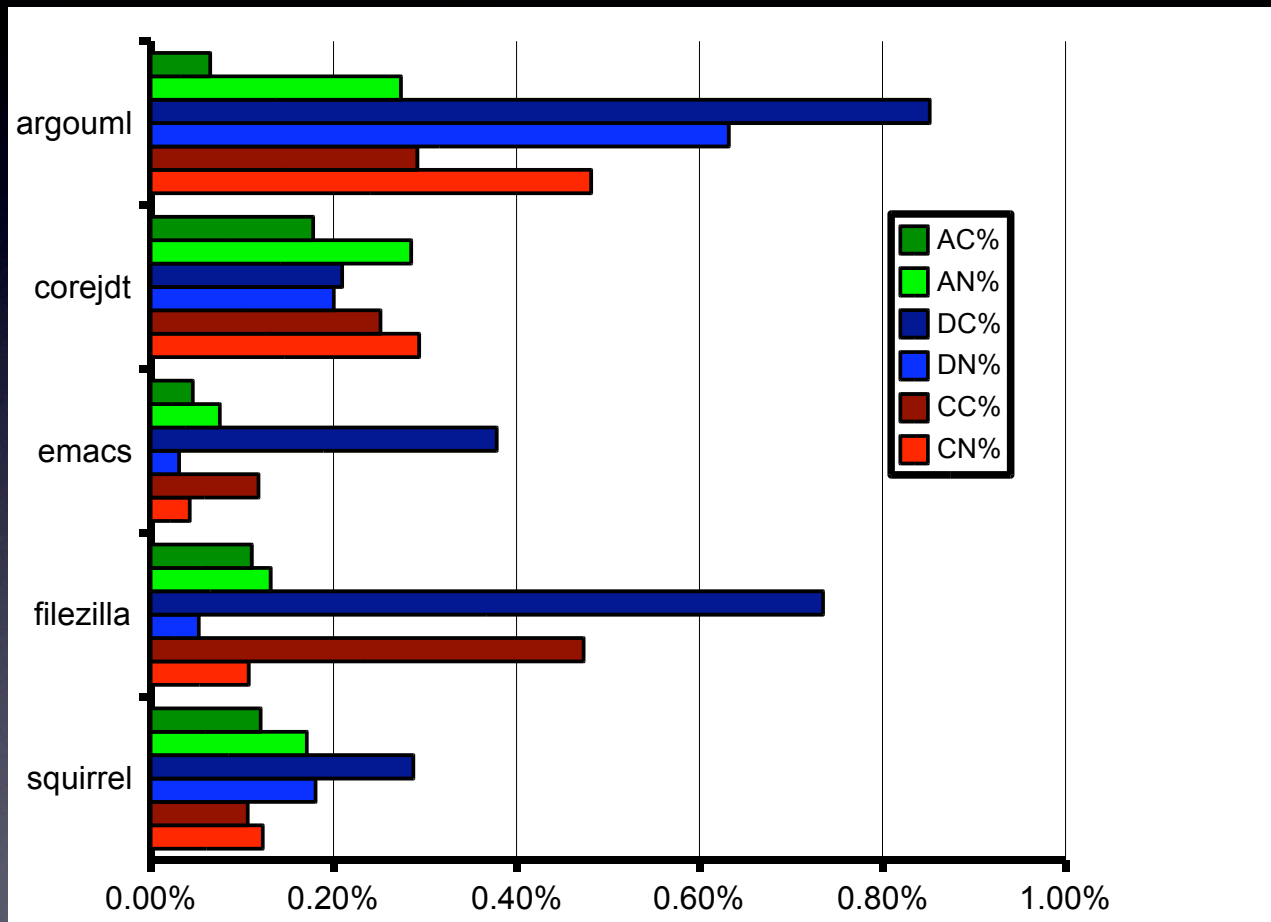


# Empirical Study

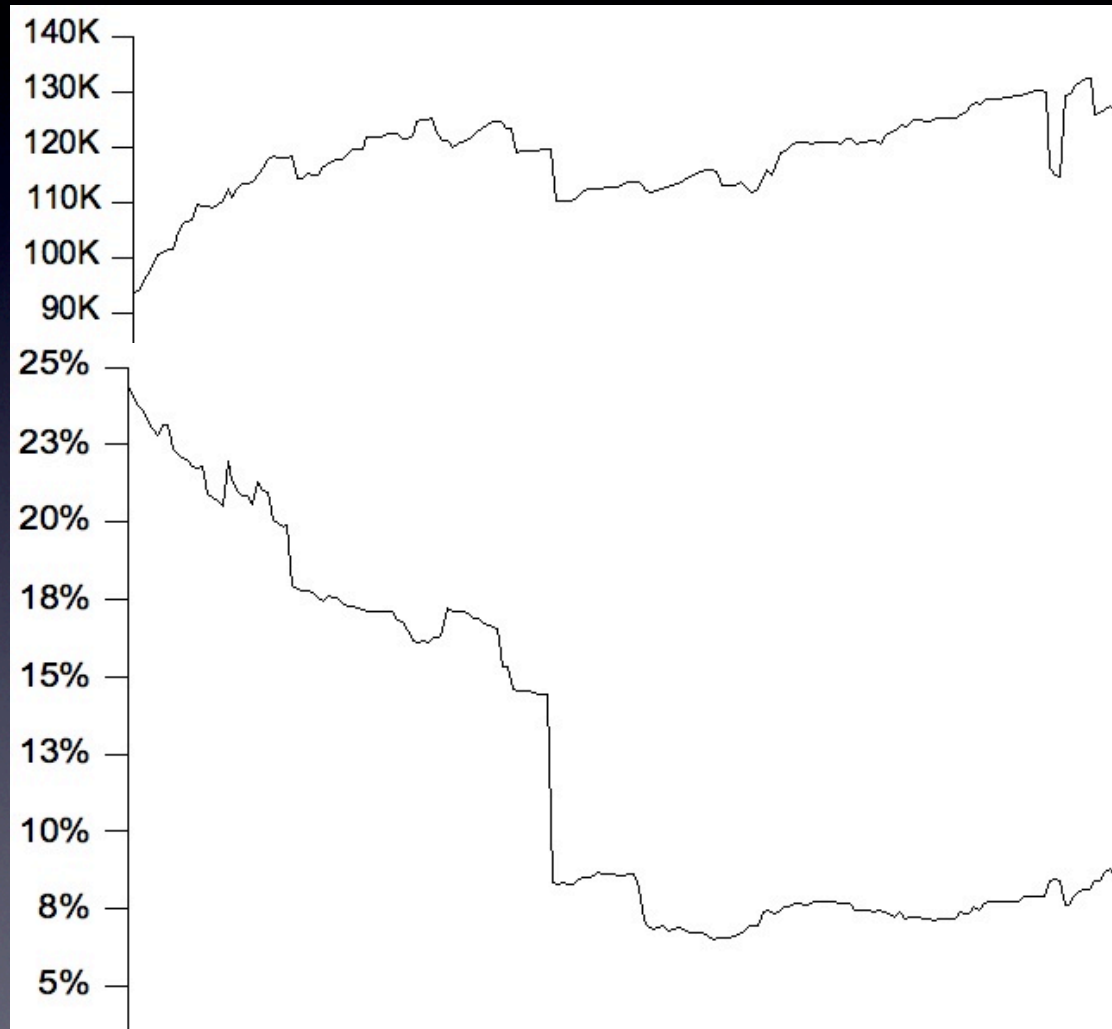
- 5 open source systems
- 200 weeks of evolution:  
200 snapshots
- Clones:  
200 sets (using simian)
- Changes (addition, deletions, changes):  
200 diffs to the next week
- Changes are mapped to clones

ArgoUML	118.316	12%
jdt.core	192.624	15%
Emacs	227.919	10%
FileZilla	90.302	16%
SQuirreL	69.981	8%

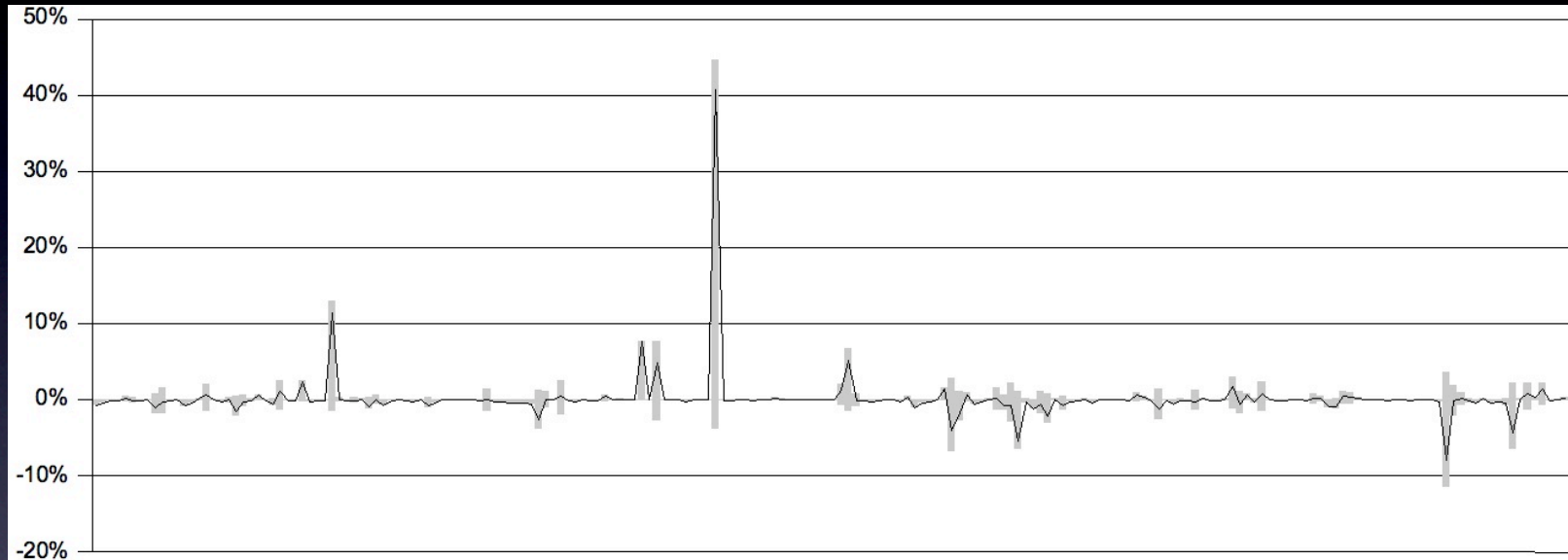
# Results



# ArgoUML

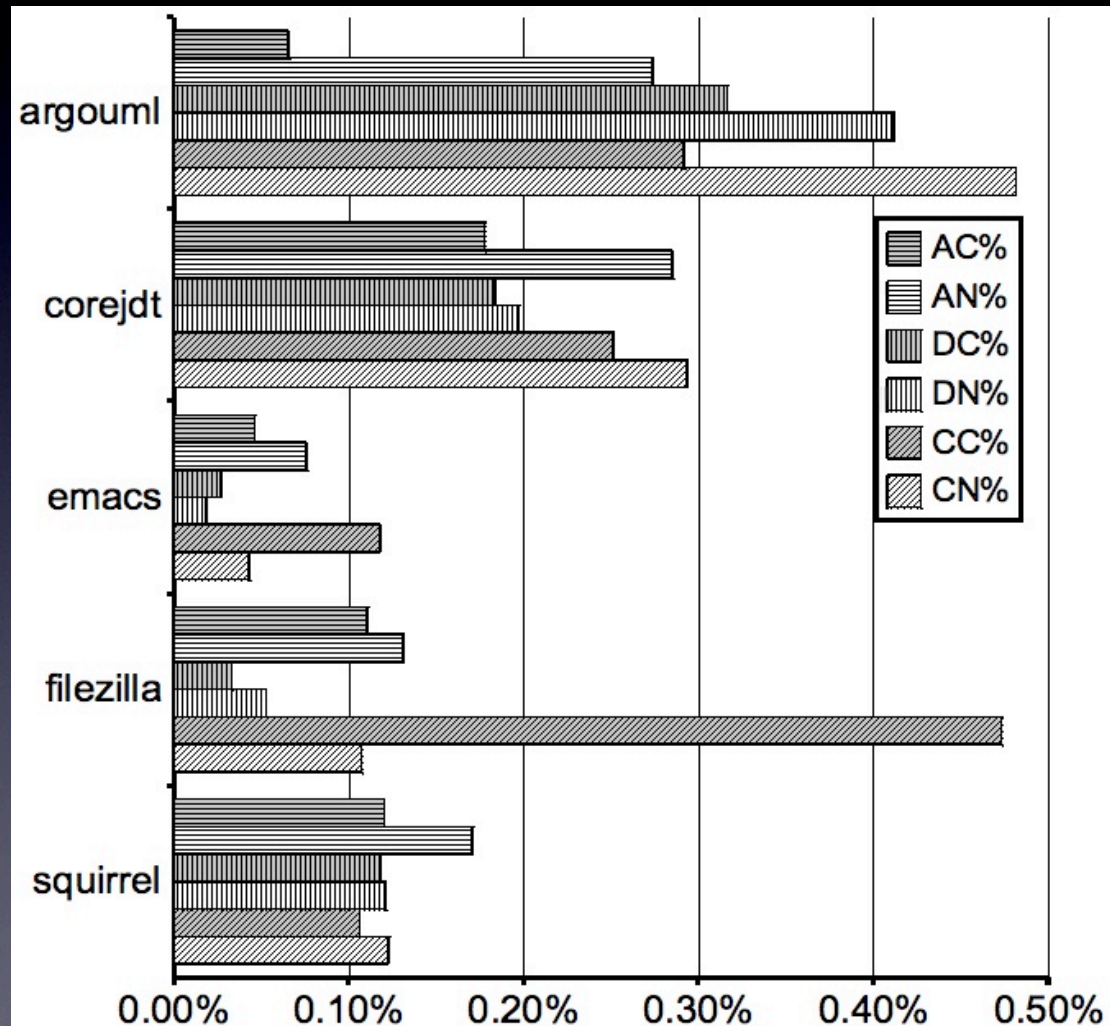


# Deletions Dominate





# Cleaner Results



# Conclusions

- The average percentage of additions, deletions, or other changes to cloned code is lower than the average percentage for non-cloned code
- More often a higher percentage of non-cloned code is added, deleted, or changed in comparison to cloned code
- **Cloned code is more stable than Non-Cloned Code**