Perspectives on Bugs in the Debian Bug Tracking System

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Introduction

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- Large collection of software packages
  Debian maintainers $\rightsquigarrow$ journal editors

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  - Packages uploads $\rightsquigarrow$ Aggregation of commits, releases
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  - But 25,000 packages in Debian
- Also used to track Debian development
  - Problems in the Debian infrastructure
  - Development procedures (*intend-to-package* bugs)

  $\rightarrow$ using *pseudo-packages* (e.g *ftp.debian.org*)

Questions

1. Number of bugs associated with packages (vs pseudo-packages) ?
2. Correlation between changes (uploads) and reported bugs ?
3. Who is reporting the bugs ?
4. How does bug frequency relate to package popularity ?

Input Data and Methodology

Input data :

1. Ultimate Debian Database (see earlier presentation)
   - But only contains summary info for bugs
   - Not all the bug comments
     - Useful in some cases
2. Public dump from the Debian Bug Tracking System

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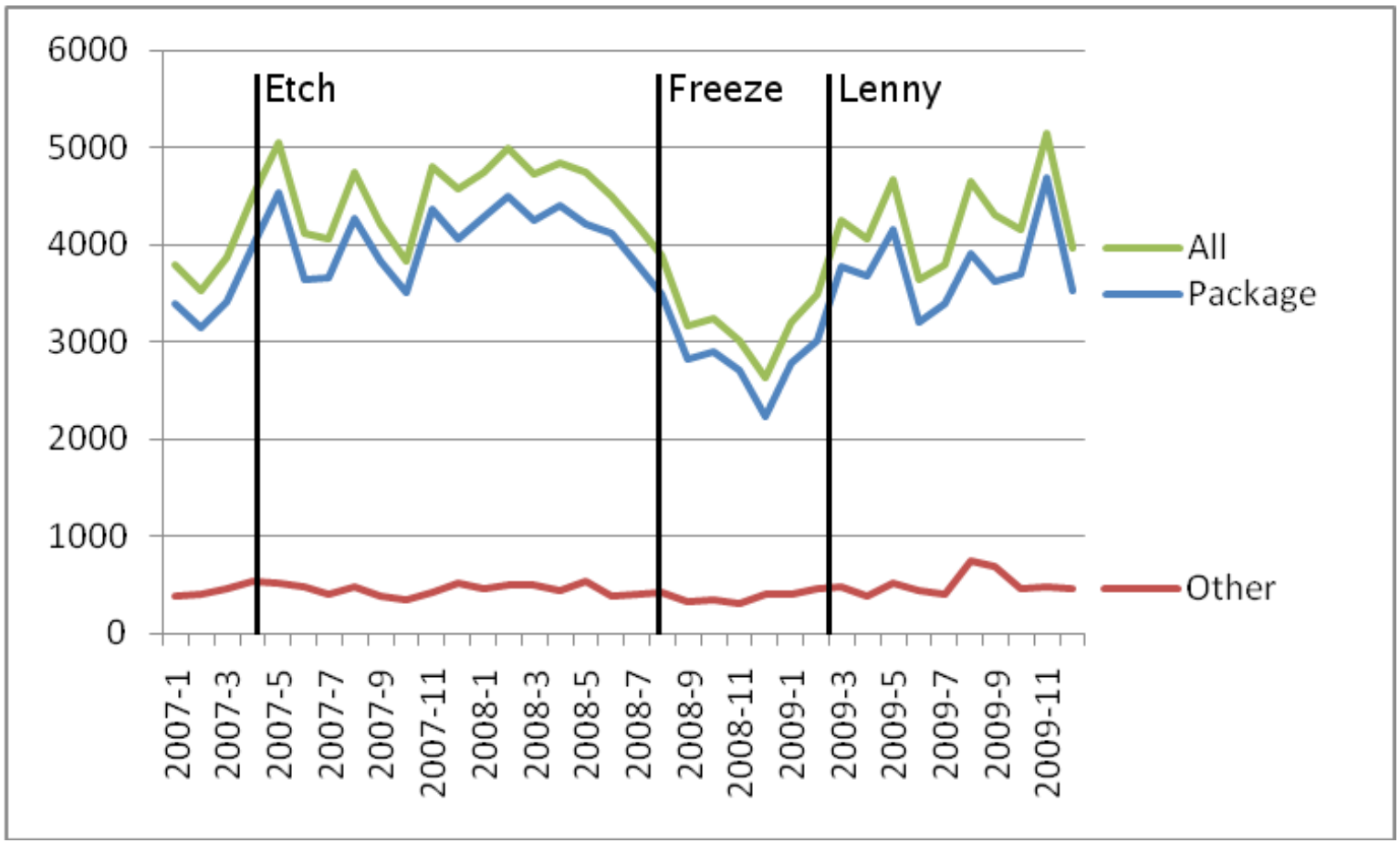
Methodology :

1. Fetched all bugs between 01/2007 and 12/2009 (158,058 bugs)
2. Aggregated per month and package
   $\rightarrow$ (iceweasel, 2007-01, 70), (iceweasel, 2007-02, 80)
3. Used UDD to separate packages from pseudo-packages

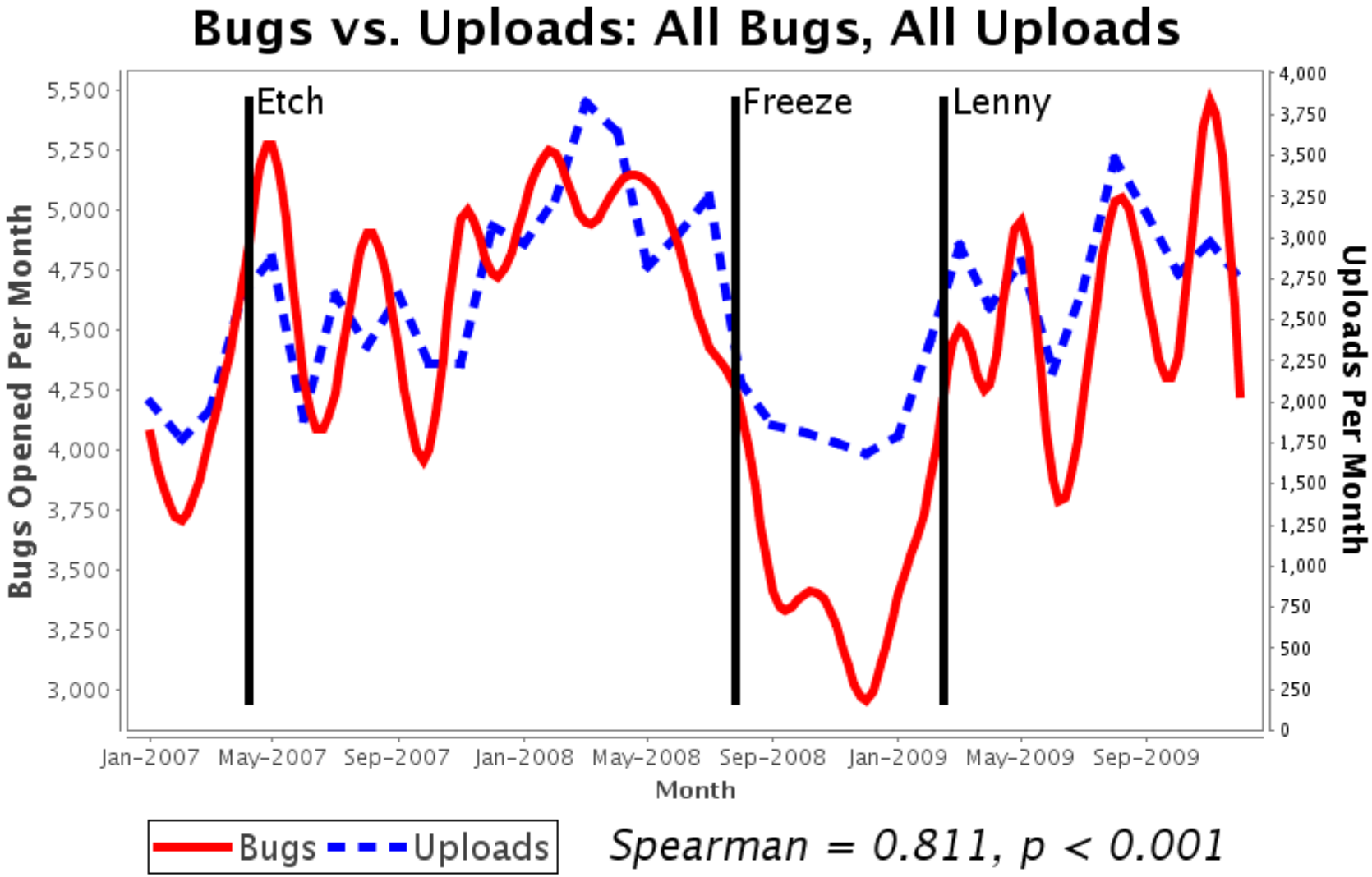
Bugs affecting packages (vs pseudo-packages)

89% of bugs are reported against real packages



Bugs opened per month between 2007 and 2009

Correlation between uploads and bugs



Number of uploads and of reported bugs are correlated

Bug reporters and packages

Number of different packages each bug reporter has filed bugs for :

Number of Packages	Proportion
1	55%
2-4	25%
5-9	9%
10-19	5%
20-29	2%
30-99	3%
100+	1%

(18 bug reporters with $\geq$1000 different packages)

Most bug reporters only report bugs
on a small number of packages

Conclusions

Debian BTS :

- Interesting research subject
- Bug management as an ecology
  many different software packages

Ultimate Debian Database :

- Enabled easy data-mining of different types of Debian data
  Packages, bugs, uploads, packages popularity

Open questions :

- Who is reporting bugs in Debian ? Users ? Debian developers ?
- Relationship between Debian development and other projects :
  - Upstream projects ?
  - Derivative distributions (Ubuntu) ?