Mancoosi tools for the quality assurance of distributions, part II

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The general idea

- Dependencies and conflicts aren’t just local
- Dependencies have different meanings
- Idea: unify and abstract
- Get the semantics behind the syntax
Strong dependencies

- Are there important packages?
- Idea: packages that everybody needs
- How to measure this?

Strong dependency: Every installation of A includes B
Can be checked using SAT
Good approximation of importance
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- Strong dependency: Every installation of A includes B
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Strong dependencies: example
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## Strong dependencies: table

From Debian squeeze:

<table>
<thead>
<tr>
<th>Package</th>
<th>Version</th>
<th>Dependancies</th>
</tr>
</thead>
<tbody>
<tr>
<td>libc-bin</td>
<td>24815</td>
<td>1</td>
</tr>
<tr>
<td>gcc-4.4-base</td>
<td>24816</td>
<td>42</td>
</tr>
<tr>
<td>libgcc1</td>
<td>24814</td>
<td>3254</td>
</tr>
<tr>
<td>libselinux1</td>
<td>18123</td>
<td>64</td>
</tr>
<tr>
<td>zlib1g</td>
<td>19543</td>
<td>1831</td>
</tr>
<tr>
<td>libbz2-1.0</td>
<td>17435</td>
<td>180</td>
</tr>
<tr>
<td>liblzma2</td>
<td>17207</td>
<td>23</td>
</tr>
<tr>
<td>libattr1</td>
<td>17115</td>
<td>60</td>
</tr>
<tr>
<td>xz-utils</td>
<td>17054</td>
<td>4</td>
</tr>
<tr>
<td>coreutils</td>
<td>17065</td>
<td>25</td>
</tr>
</tbody>
</table>
Strong conflicts

- A and B can never be installed together
- Many strong conflicts: problem
- Strong conflicts have a root
- Allows to track down problems
Strong conflicts: example

```
alpha
bravo charlie
delta
#
echo
foxtrot
golf
```

Diagram:
- echo
- golf
- alpha
- delta
- foxtrot
- bravo
- #
- charlie
2362 ppmtofb-0.32-0.1:
  2362 (python-2.5.2-3 <-> ppmtofb-0.32-0.1)
* atomix-2.14.0-1 (conjunctive)
  - conflict: python-2.5.2-3 - ppmtofb-0.32-0.1
  - dependency: gconf2-2.22.0-1 -> python-2.5.2-3
  - dependency: libgnome2-common-2.20.1.1-1 -> gconf2-2.22.0-1
  - dependency: libgnome2-0-2.20.1.1-1 -> libgnome2-common-2.20.1.1-1
  - dependency: atomix-2.14.0-1 -> libgnome2-0-2.20.1.1-1
(...