Full Disclosure: Advice for Web Extensions

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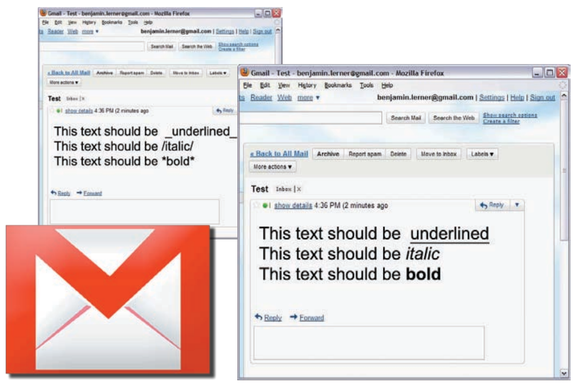
Customizing the web: apps and browsers

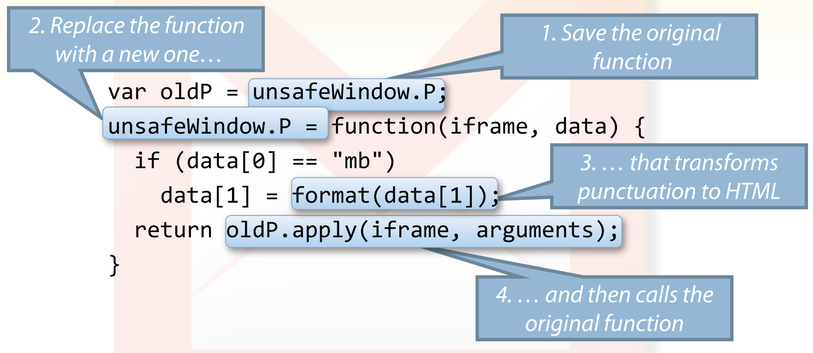
No fixed system can satisfy every user's every whim. Fortunately, web browsers and the apps they run are easy to customize. These ***extensions*** are wildly popular: nearly *200 million* are used daily!

"I get a lot of plain-text email, and wish Gmail would format it nicer"



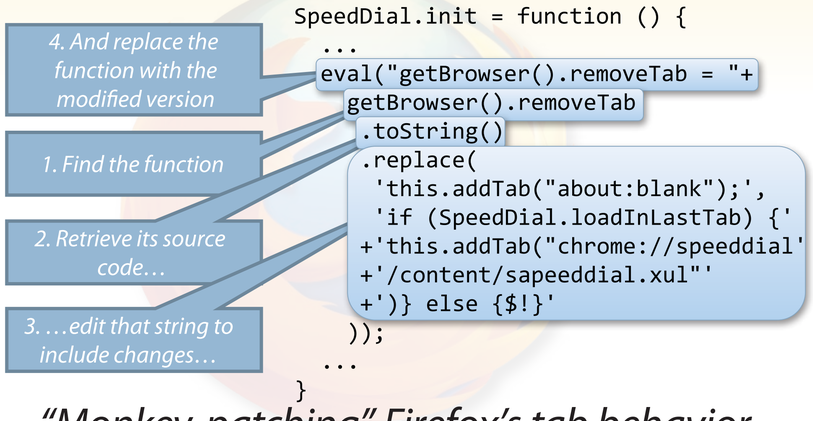
"Firefox's new-tab screen is blank, so let's make it more useful"

A customization free-for-all?



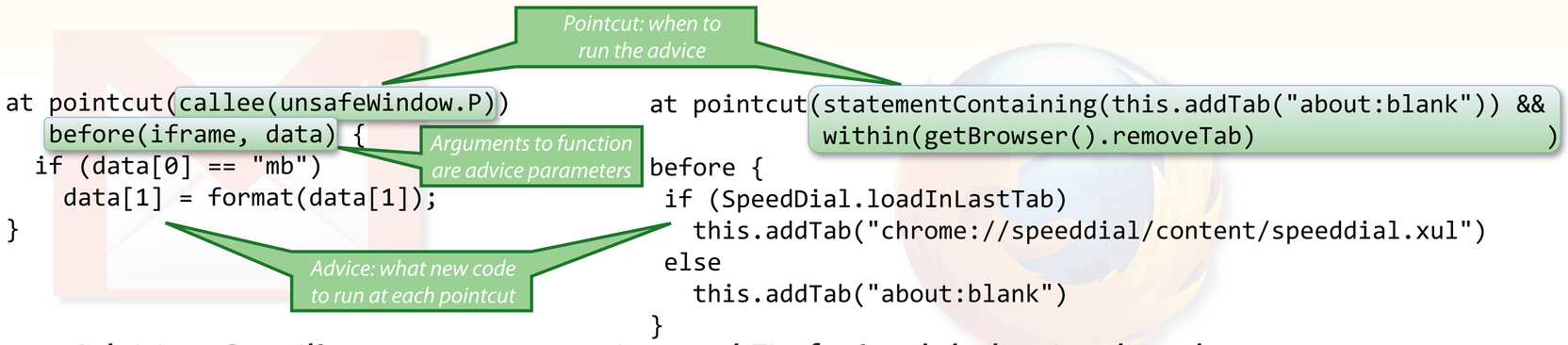
"Wrapping" Gmail's message processing may break aliases

Browsers and web apps are largely written in Javascript, and idioms exist to arbitrarily inject new code into them. These idioms are all ***brittle and semantically broken*** for aliases or non-trivial closures…



"Monkey-patching" Firefox's tab behavior may also silently introduce syntax errors

Writing extensions with aspects

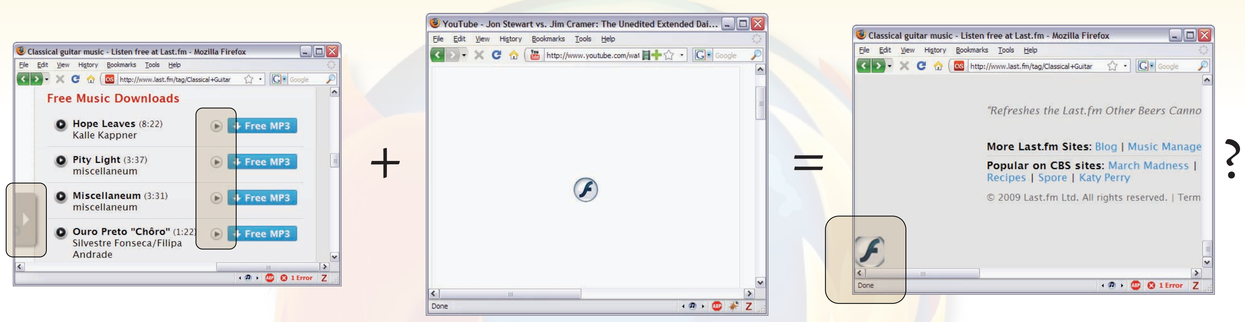


Advising Gmail's message processing and Firefox's tab behavior directly avoids creating new closures, breaking aliases or mangling syntax

Implementing aspects in Javascript enables advising closures directly, neatly avoiding the problems with the idioms above. As an added bonus, the code is shorter, simpler and more composable.

Future work

Implementing extensions with aspects inherently prevents some forms of conflict among extensions, but not all. But aspects are more declarative than current idioms, paving the way for program analyses to detect and possibly help resolve conflicts.



The FoxyTunes extension inserts Flash objects to stream MP3s. FlashBlocker blocks Flash objects. Should it apply to FoxyTunes also?