

Tit-for-tat? Adblock wars investigated

Hugo Jonker

*Joint work with Dan Wallach (Rice University),
Clayton Drazner, Nikola Đuza*

Open Universiteit

www.ou.nl



Ads & adblocking



Acntergrond: Zo ga je om met werknemers met psychische klachten

- ▶ 'KLM-management niet tevreden met kandidaat-topman AF-KLM'
- ▶ Trump wil handelsoorlog met China verder laten escaleren'
- ▶ Fraudeonderzoek ING duurt langer dan verwacht
- ▶ Woningcorporaties: meer geld nodig om woningen CO2-neutraal te maken
- ▶ Tabakszaken krijgen illegale verkoopbonussen
- ▶ Groei aantal passagiers Nederlandse luchthavens zet door
- ▶ Britse minister: 'Dreigement bedrijven om te vertrekken vanwege Brexit ongepast'

Zo bepaal je als zzp'er je optimale tarief

Gesponsord door: Knab

knab

Sport



Verweij vindt geen sponsors en stopt een jaar met schaatsen

'De realiteit leert dat ik op de helft van het noodzakelijke budget zit'

- ▶ Van Marwijk overtuigd van plek in achtste finales met Australië
- ▶ Egyptische bond ontkracht gerucht over einde interlandcarrière Salah
- ▶ Verstappen hoopt tweede plek in Frankrijk vervolg te geven in 'Triple Header'
- ▶ Realistische Lewandowski: 'Polen heeft simpelweg te weinig kwaliteit'
- ▶ Transferupdates: 'Martial voor 80 miljoen van Manchester United naar Juventus'
- ▶ Video: Nederlandse zege Volvo Ocean Race: 'Dit is onze Champions League'
- ▶ FIFA start ook onderzoek naar uitspraken voorzitter Servische voetbalbond
- ▶ Bondscoach Colombia looft 'symbool' Falcao na eerste WK-treffer
- ▶ Van der Mark vijfde in tweede race WK Superbike op Laguna Seca
- ▶ Kuipers aangewezen als vierde official bij Argentinië-Nigeria

Maak kans op een Formule 1-reis naar de GP van België

Gesponsord door: VERONICA

VERONICA

WK programma & uitslagen

- ▶ WK-programma 25 juni: Marokko neemt afscheid. Iran moet stunten

Regular view



- ▶ Groei aantal passagiers Nederlandse luchthavens zet door
- ▶ Britse minister: 'Dreigement bedrijven om te vertrekken vanwege Brexit ongepast'

Sport



Verweij vindt geen sponsors en stopt een jaar met schaatsen

'De realiteit leert dat ik op de helft van het noodzakelijke budget zit'

- ▶ Van Marwijk overtuigd van plek in achtste finales met Australië
- ▶ Egyptische bond ontkracht gerucht over einde interlandcarrière Salah
- ▶ Verstappen hoopt tweede plek in Frankrijk vervolg te geven in 'Triple Header'
- ▶ Realistische Lewandowski: 'Polen heeft simpelweg te weinig kwaliteit'
- ▶ Transferupdates: 'Martial voor 80 miljoen van Manchester United naar Juventus'
- ▶ Video: Nederlandse zege Volvo Ocean Race: 'Dit is onze Champions League'
- ▶ FIFA start ook onderzoek naar uitspraken voorzitter Servische voetbalbond
- ▶ Bondscoach Colombia looft 'symbool' Falcao na eerste WK-treffer
- ▶ Van der Mark vijfde in tweede race WK Superbike op Laguna Seca
- ▶ Kuipers aangewezen als vierde official bij Argentinië-Nigeria

WK programma & uitslagen

- ▶ WK-programma 25 juni: Marokko neemt afscheid, Iran moet stunten
- ▶ Speelschema en standen WK

With adblocker

Why?

Why ads:

- Source of revenue

Why adblocking:

- Privacy (ads track)
- Security (malvertisement)
- Usability (ads distract from or break sites)

How adblocking works

```
...
! jQuery Adblock
! http://www.vivekv.com
/jquery.adblock.js|$script
...
! Adbuddy
! http://xenodesystems.appspot.com/adbuddy.html
/js/adbuddy.min.js$script
###adbuddy-no-adb-container
###adbuddy-overlay
...
! AntiAdblock (ErikSwan)
! http://erikswan.net/abp/ (<div id="tester">)
! AntiAdblock (D3xt3r)
! http://d3xt3r.com/anti-adblock?test (blockblockA)
! Default
@@/advertisement*.js$script
@@/advert.js$script,domain=~adulmult.tv
...
```

How adblocking works

```
...
! jQuery Adblock
! http://www.vivekv.com
/jquery.adblock.js|$script
...
! Adbuddy
! http://xenodesystems.appspot.com/adbuddy.html
/js/adbuddy.min.js$script
###adbuddy-no-adb-container
###adbuddy-overlay
...
! AntiAdblock (ErikSwan)
! http://erikswan.net/abp/ (<div id="tester">)
! AntiAdblock (D3xt3r)
! http://d3xt3r.com/anti-adblock?test (blockblockA)
! Default
@@/advertisement*.js$script
@@/advert.js$script, domain=~adultmult.tv
...
```

Wait, WHAT?? ALLOW???

How adblock-detection works

- Introduce “bait” element(s)
- Check if bait element is blocked
 - YES → adblock
 - NO → no adblock

So: anti-adblock-detection can work by

1. allowing bait elements
2. blocking the check for bait elements

Status

- Site owners put ads on site
- Advertisers don't want to be blocked
- Users want to block ads
- ...

S.

OF COURSE YOU REALIZE



THIS MEANS WAR

-
-
-
-

War?

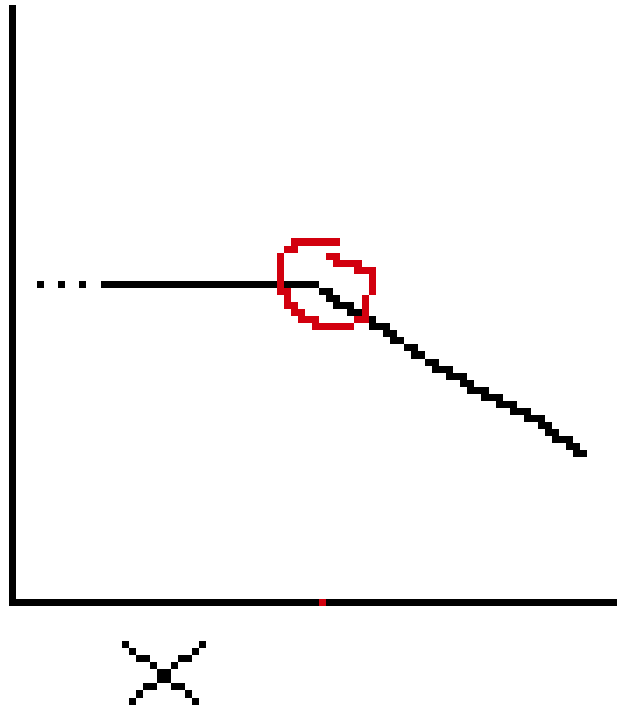
Publishers

- F**k-adblock
- F**k-f**k-f**k-adblock
- Block-adblock
- Etc.

Users

- F**k-f**k-adblock
- Anti-adblock-killer
- Nano-defender
- Etc.

Expectation: sudden drop off



Sounds serious... is it?

- Let's check!
- Scrape sites daily
- Check if user-side mechanisms trigger

Data collection: filter lists

Daily iterations of filter lists
(last commit of the day):

- AntiAdblockKiller
became unmaintained :s
- AdblockProtector/uBlockProtector
- EasyList: entire list
normal adblock plus filters: specifically 3rd party
adservers, malware... etc.
- Adguard (newish)

Data collection: websites

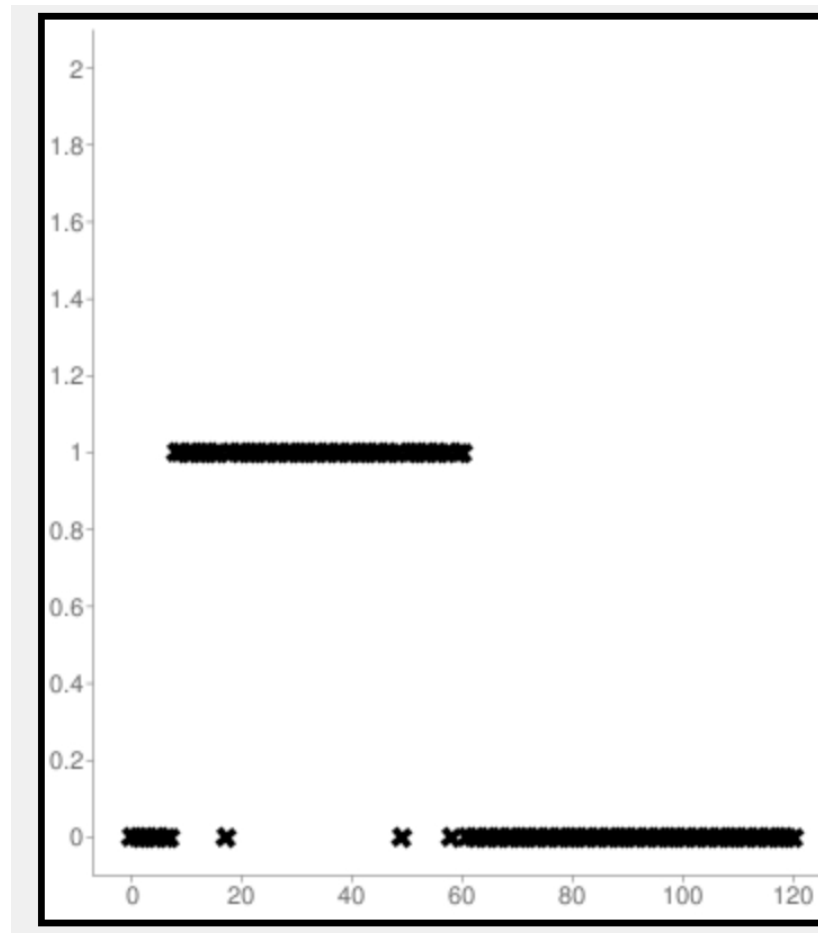
- Daily scrapes of web sites
 - Alexa Top 10K
120 days, ~400GB
 - Sites newly added to filter lists
140 days, ~87GB
- Scraped using cloud platform
 - Benefit: scales easily

Data processing & analysis

- Check if page triggers hit
 - use `libadblockplus` library
(wrapper around `adblockplus`' core functions)
- Plot: one line per (website, filter rule)
 - Rule triggered: marked
 - Rule not triggered: not marked
 - Rule never triggered: line omitted

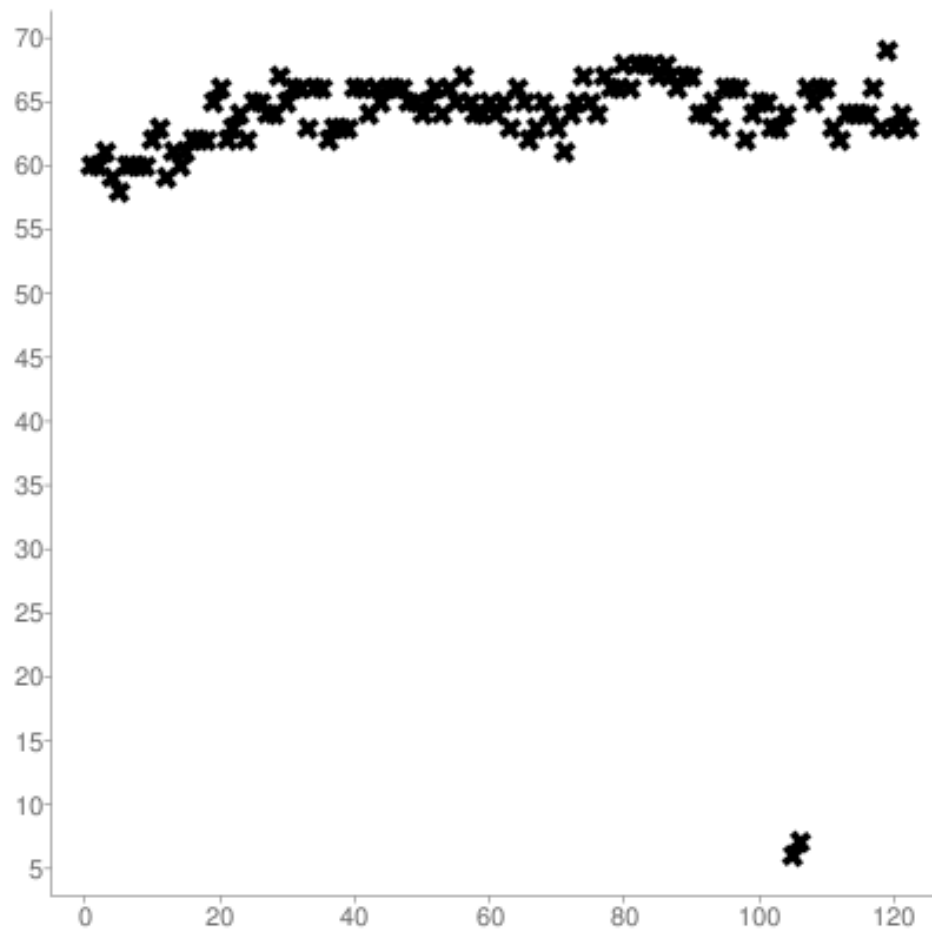
Visualising data (1 / 5)

- 1 site, #rules triggered



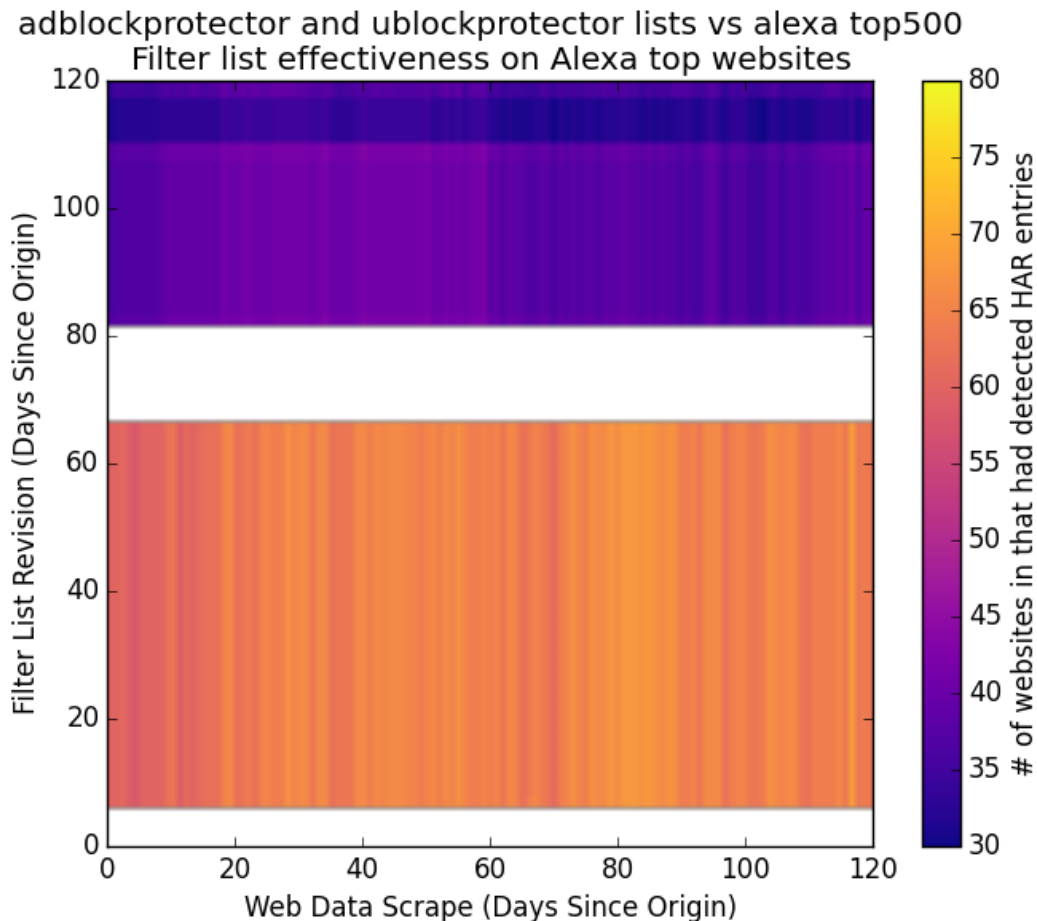
Visualising data (2 / 5)

- all sites, #rules triggered



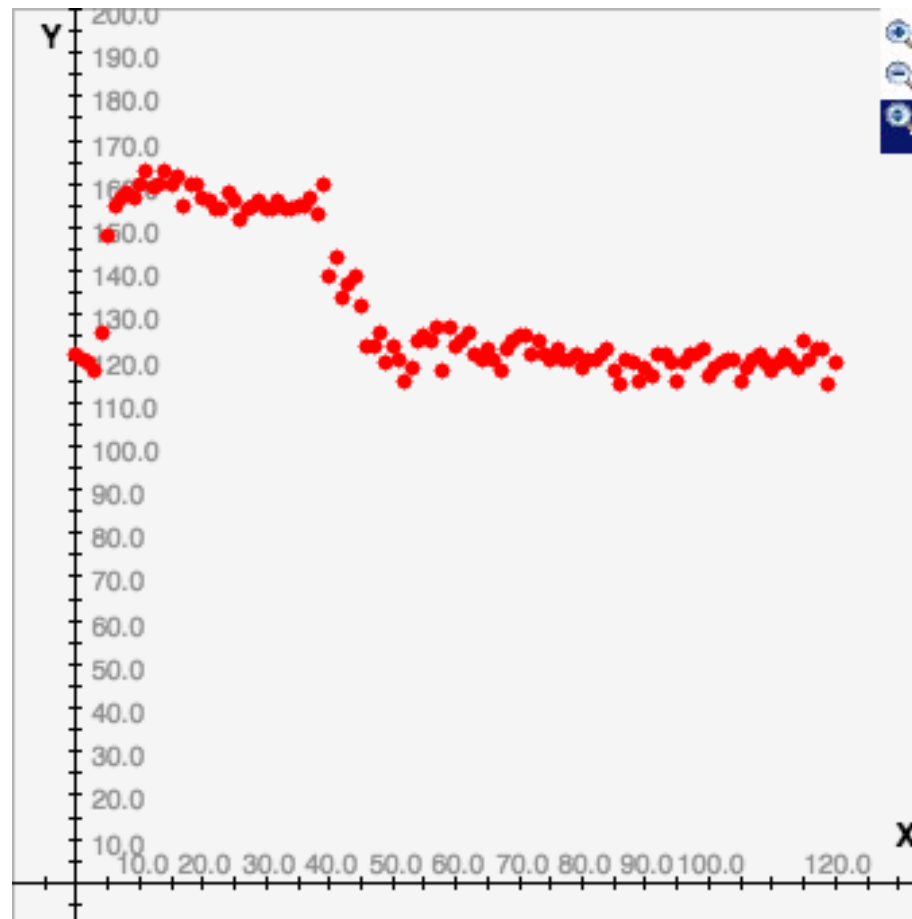
Visualising data (3 / 5)

- all sites x all filter lists, heatmap



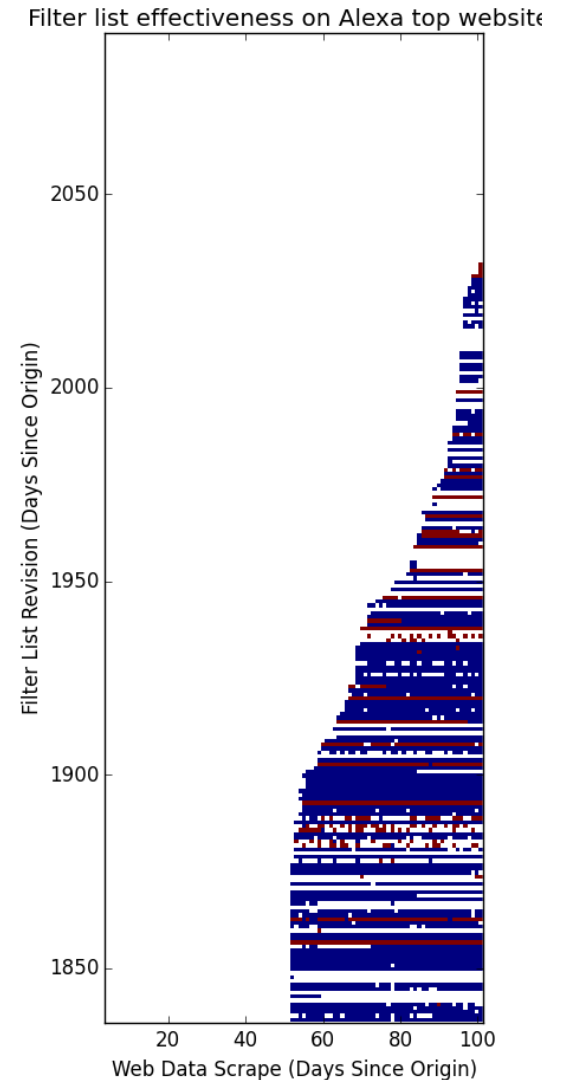
Visualising data (4 / 5)

- Easylist, 3rd party filter hits on Alexa top 500



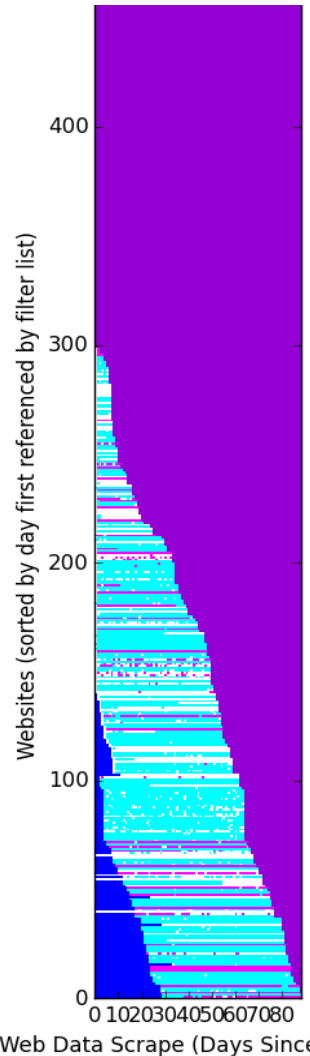
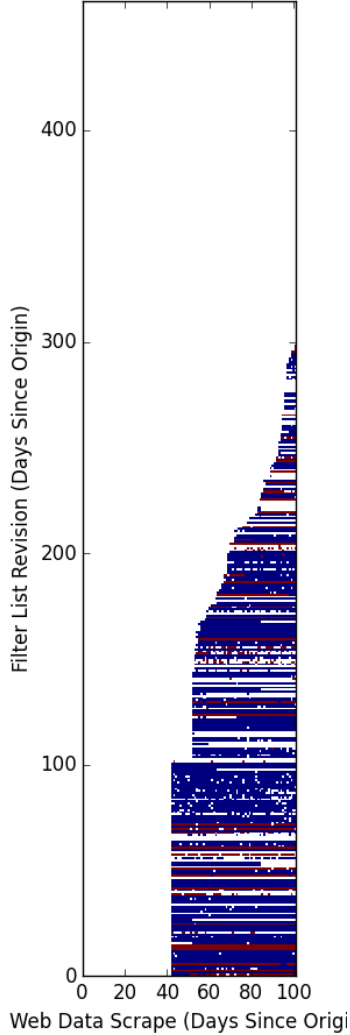
Visualising data (5 / 5)

- Each row (website, filter)
- Red: ≥ 1 hit
- White: no data
- Blue: no hit
- Toss out rows with no hit



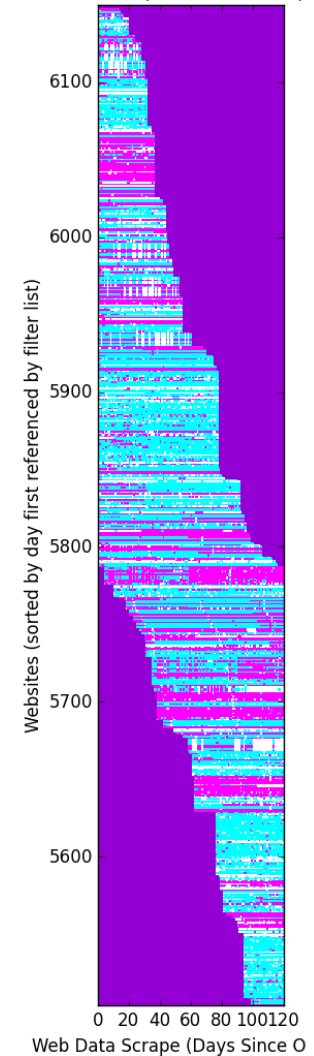
Shifting the data

Filter list effectiveness on Alexa top



...

Filter list effectiveness on Alexa top (site, filter rule) combination



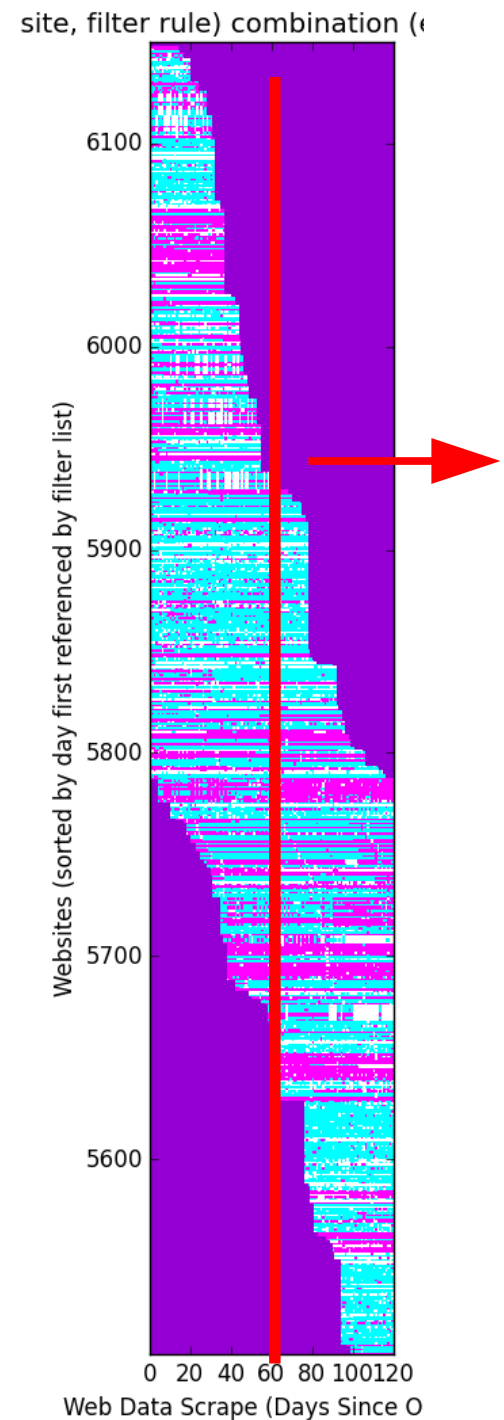
Days since start of experiment

Days since rule was added

Days since rule / site was added

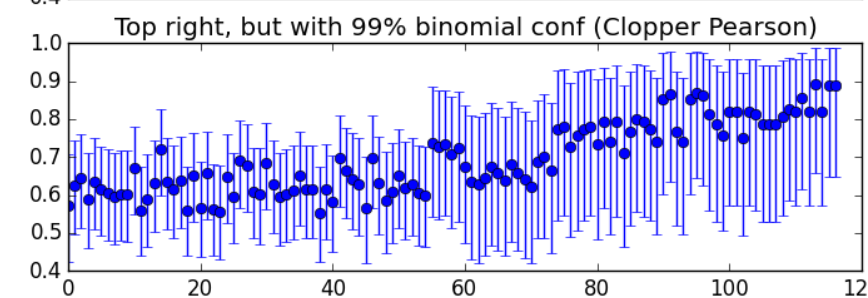
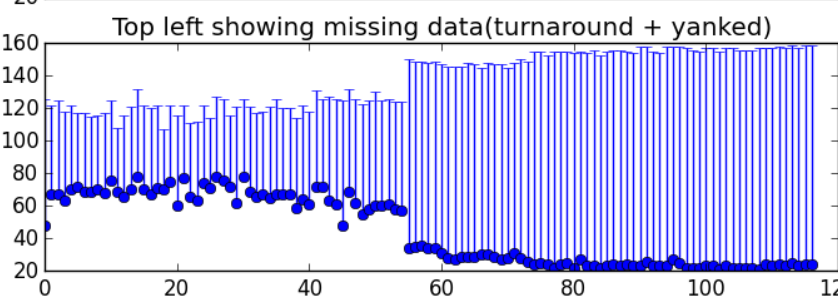
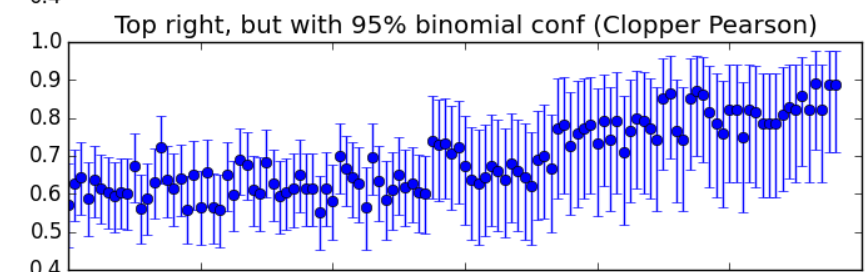
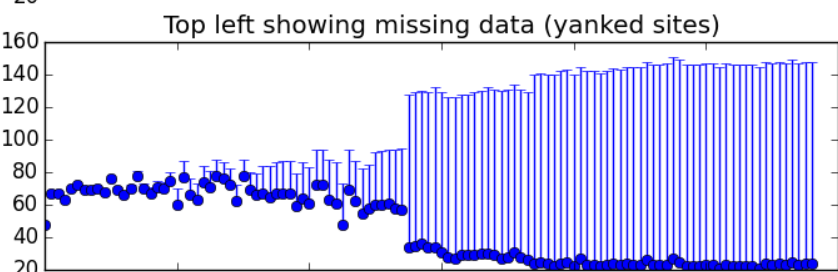
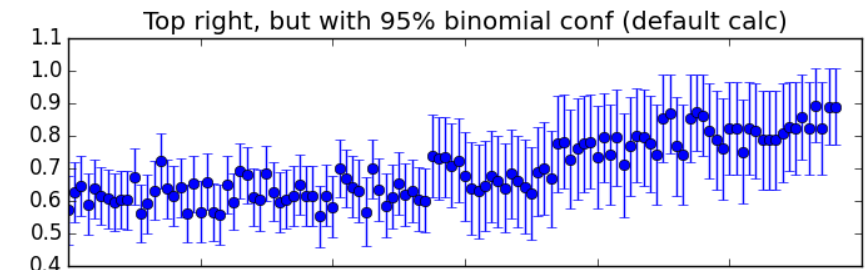
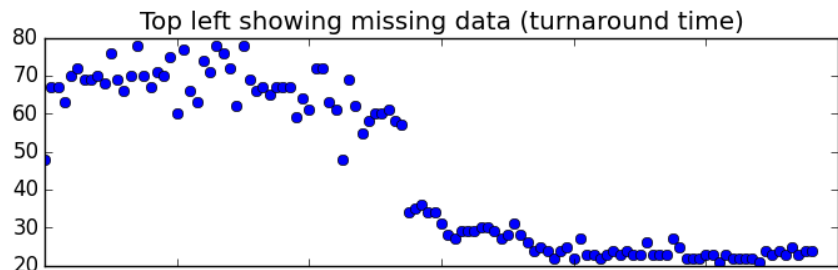
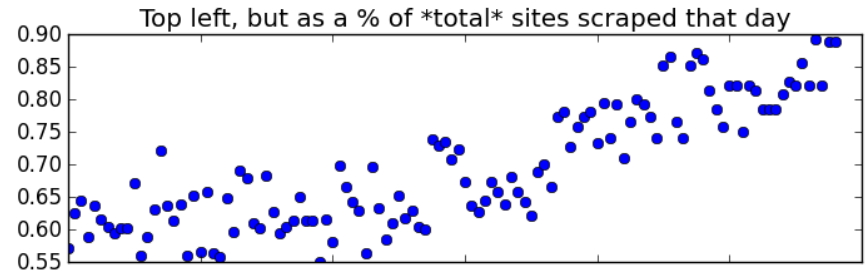
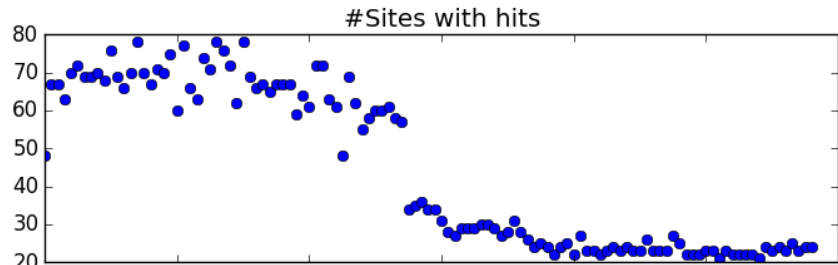
What we're interested in

- Progressive slices of this graph
- Note that the number of rows with data changes with data changes
- i.e.: the amount of data differs from day to day.



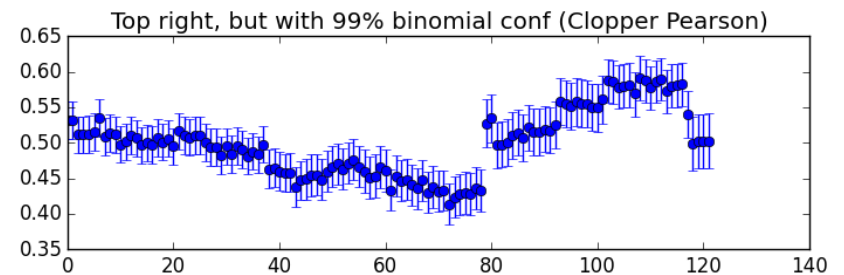
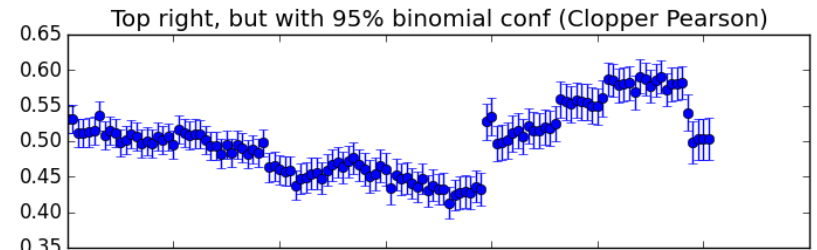
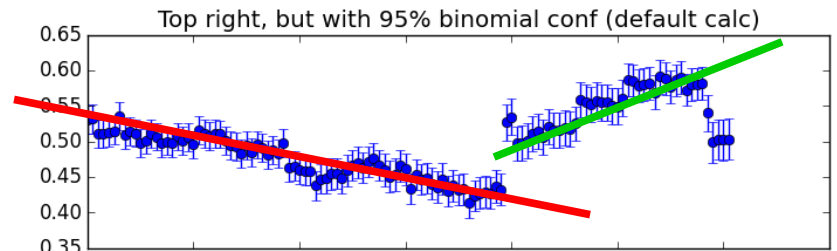
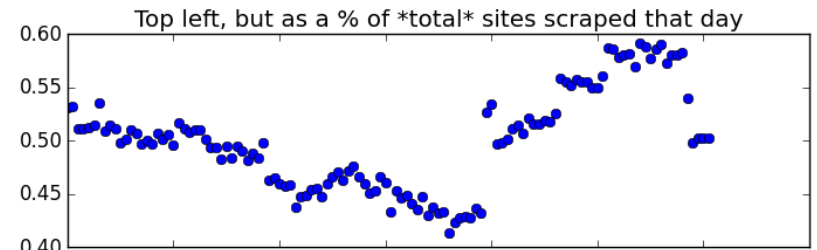
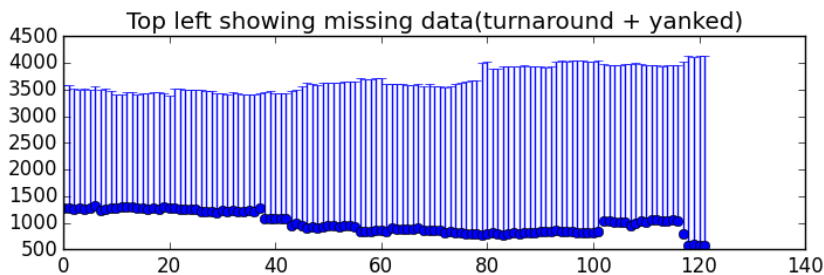
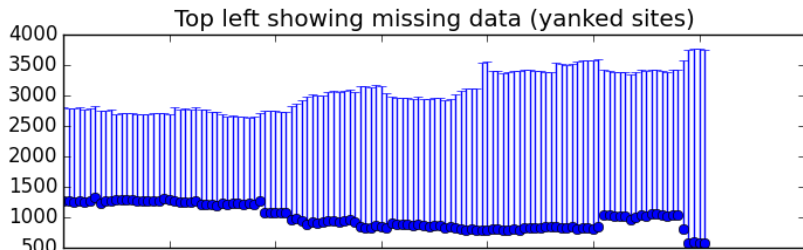
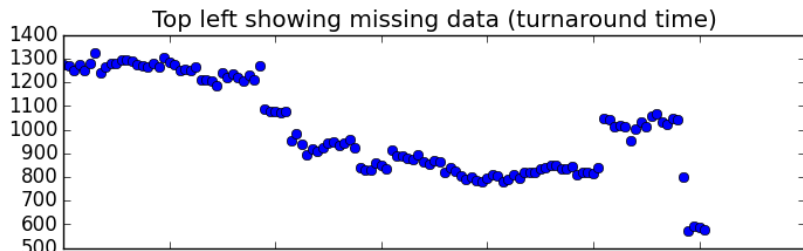
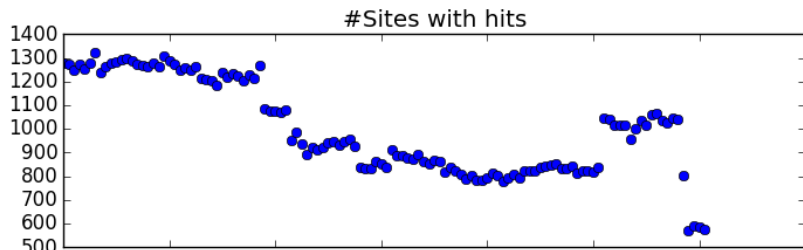
Error bars

"When ubp filters trigger on the alexa 400 + on the ubp-targetd (interlaced!)"



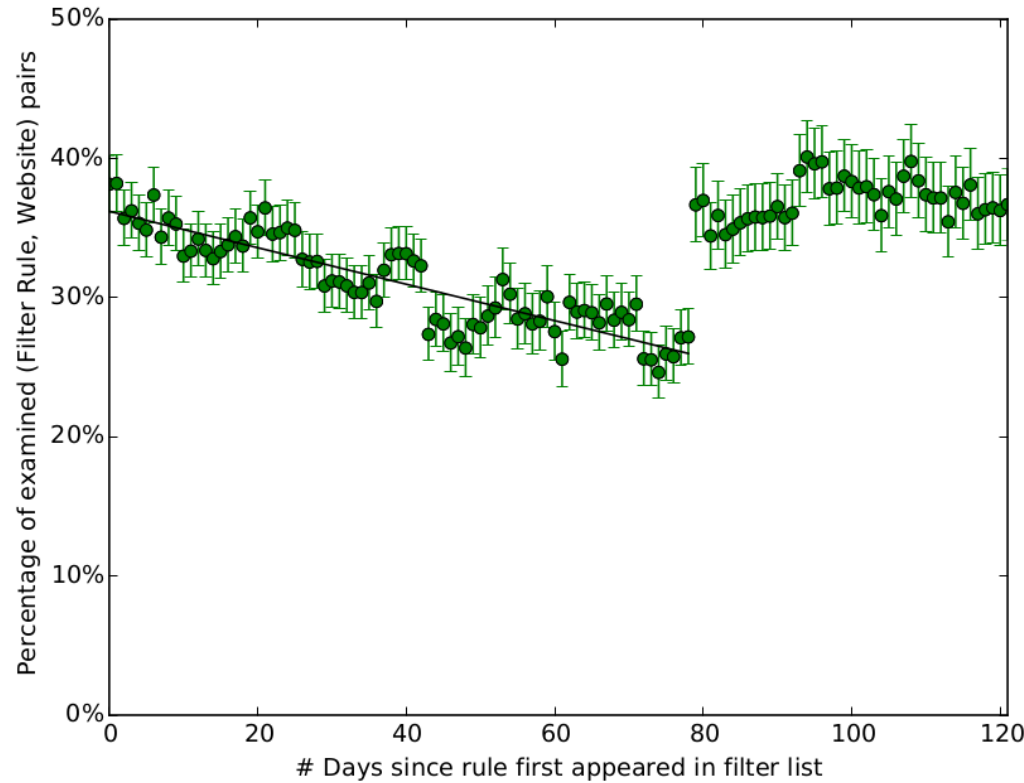
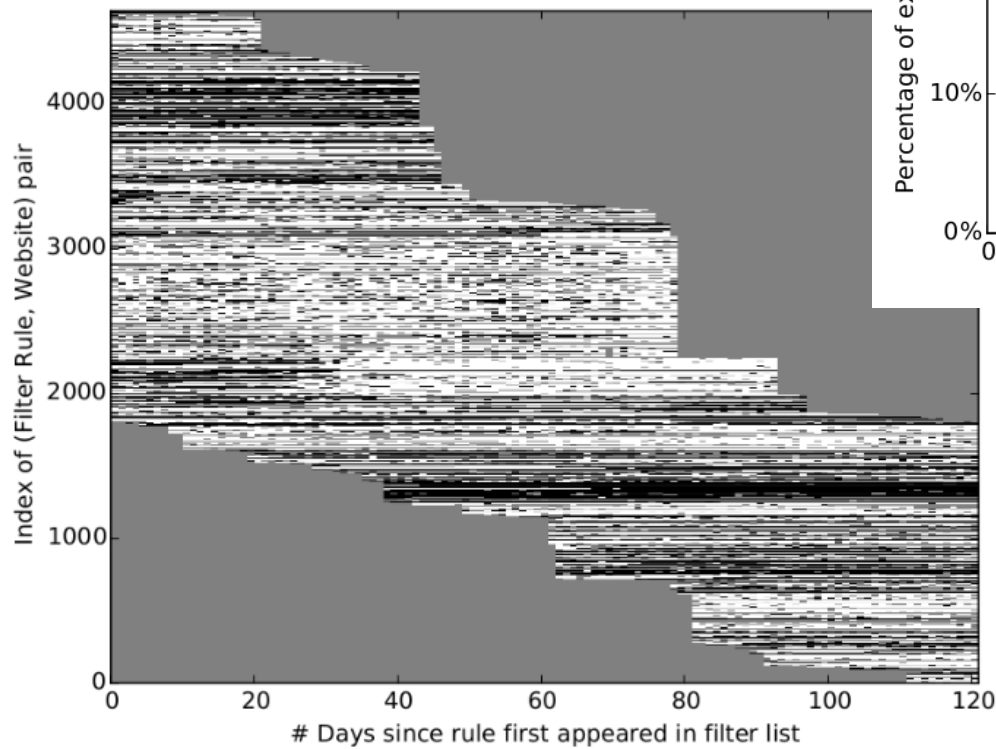
But: trends!

When abp, ubp, and easylist filters trigger on the alexa 5000



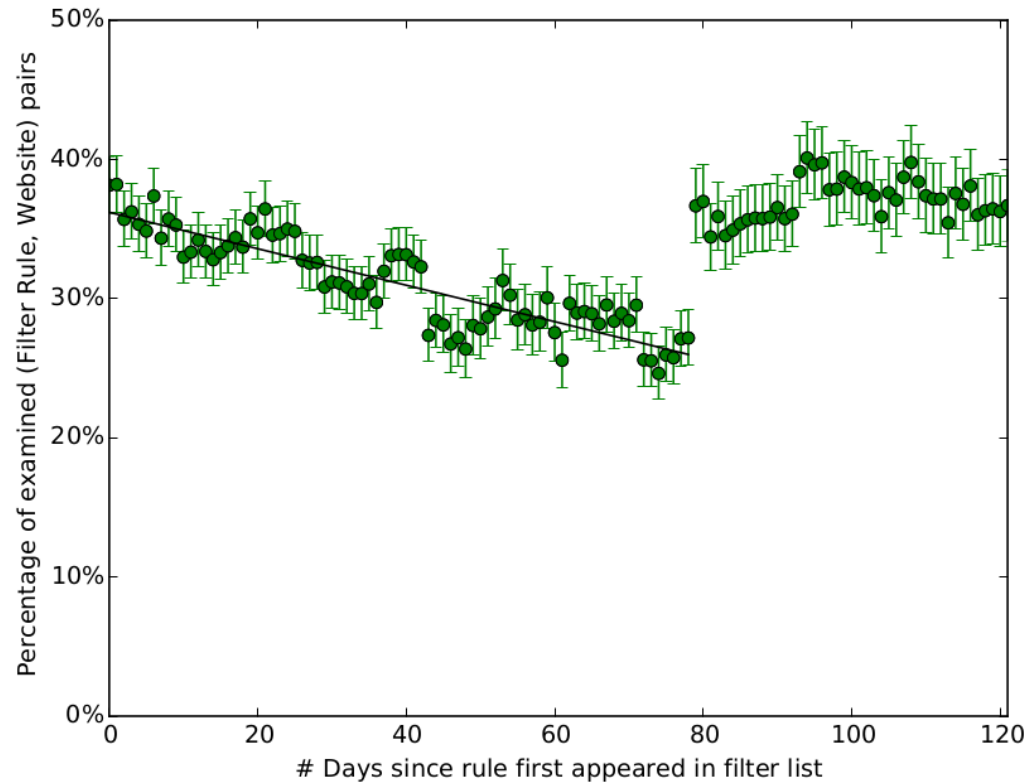
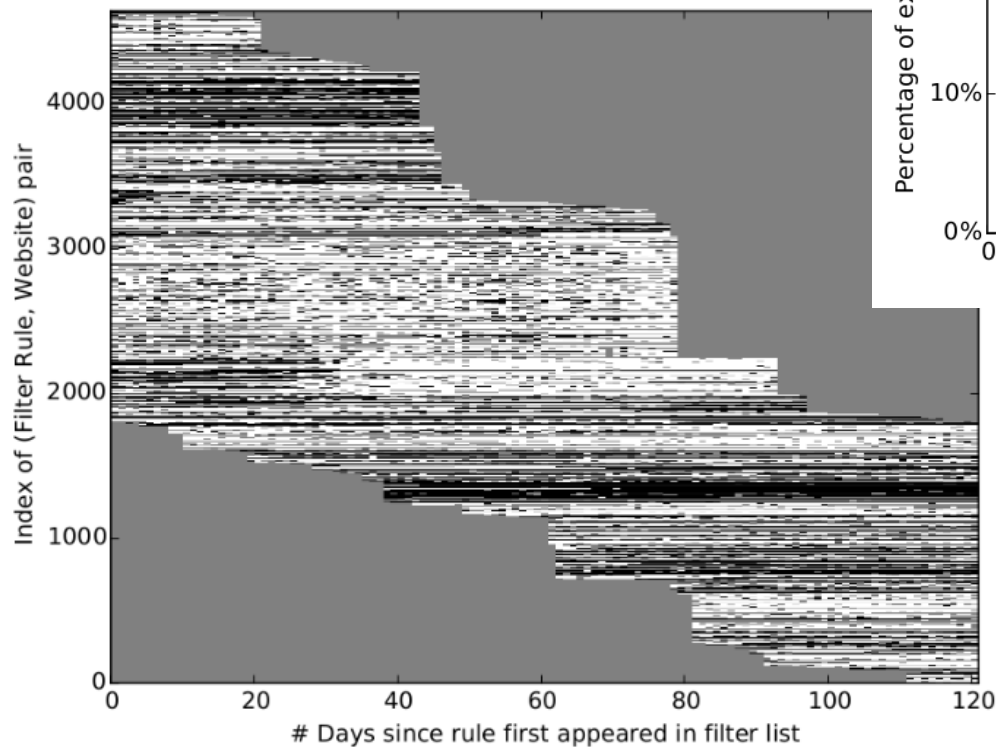
Results: EasyList

- Easylist,
Alexa Top 5K



Results: EasyList

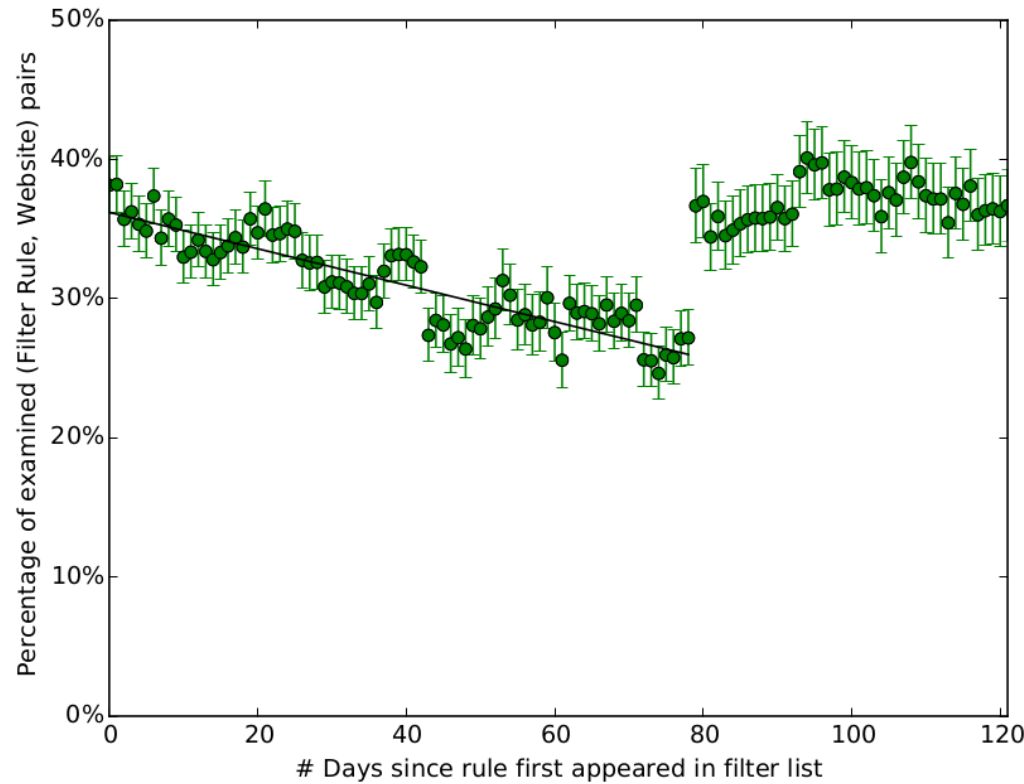
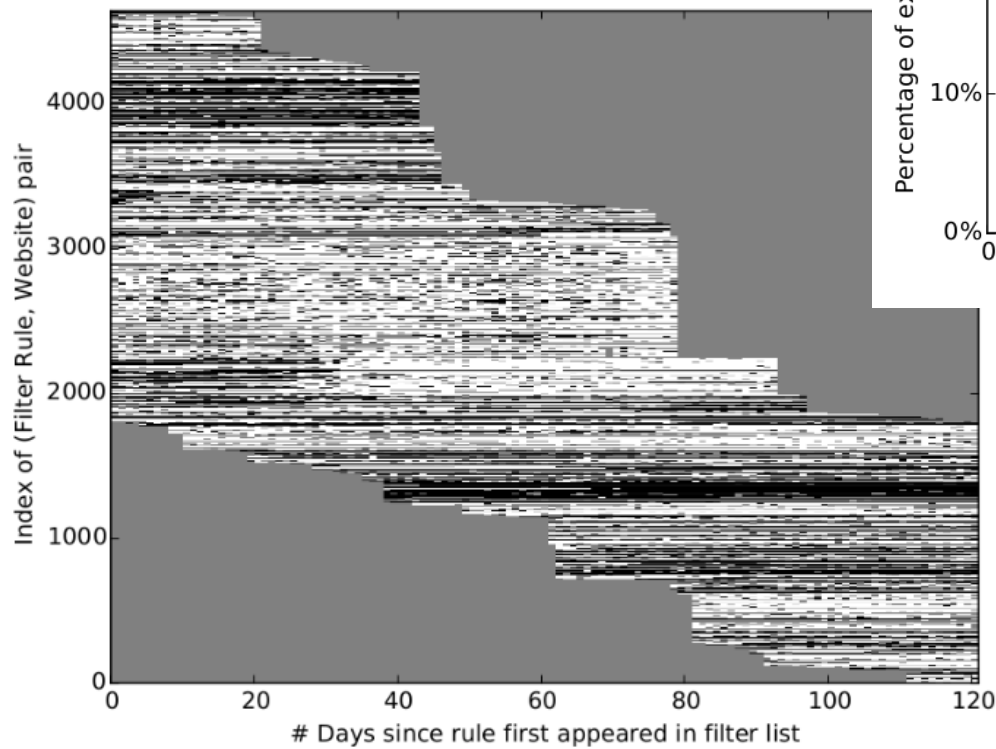
- Easylist,
Alexa Top 5K



Effectiveness of easylist

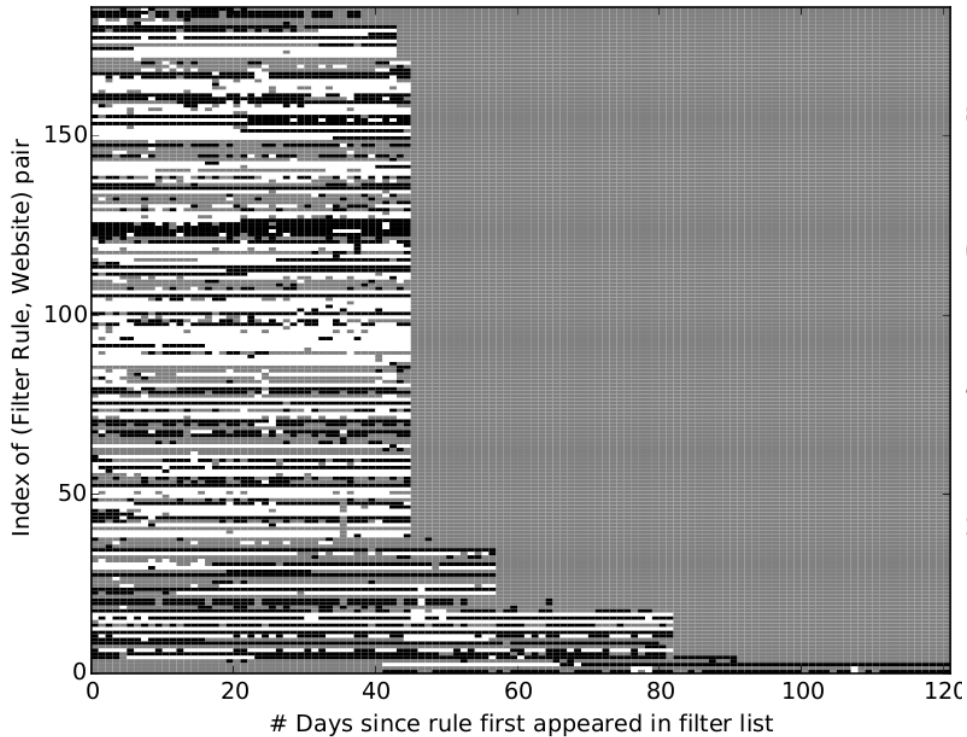
Results: EasyList

- Easylist,
Alexa Top 5K

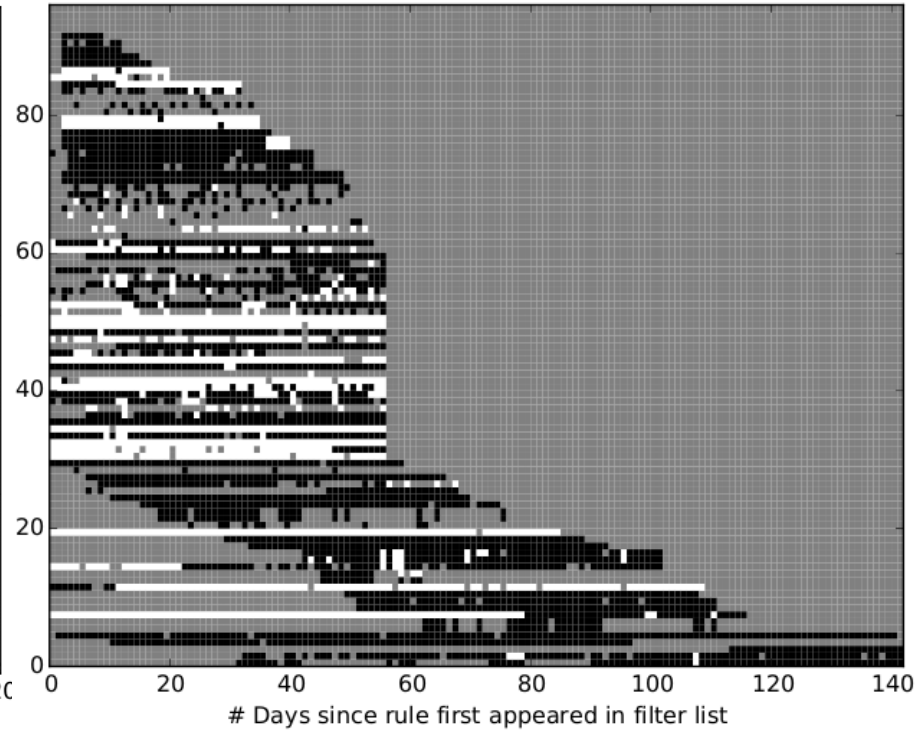


**Effectiveness of easylist
rules reduces over time!**

Results: Antiadblock-killer

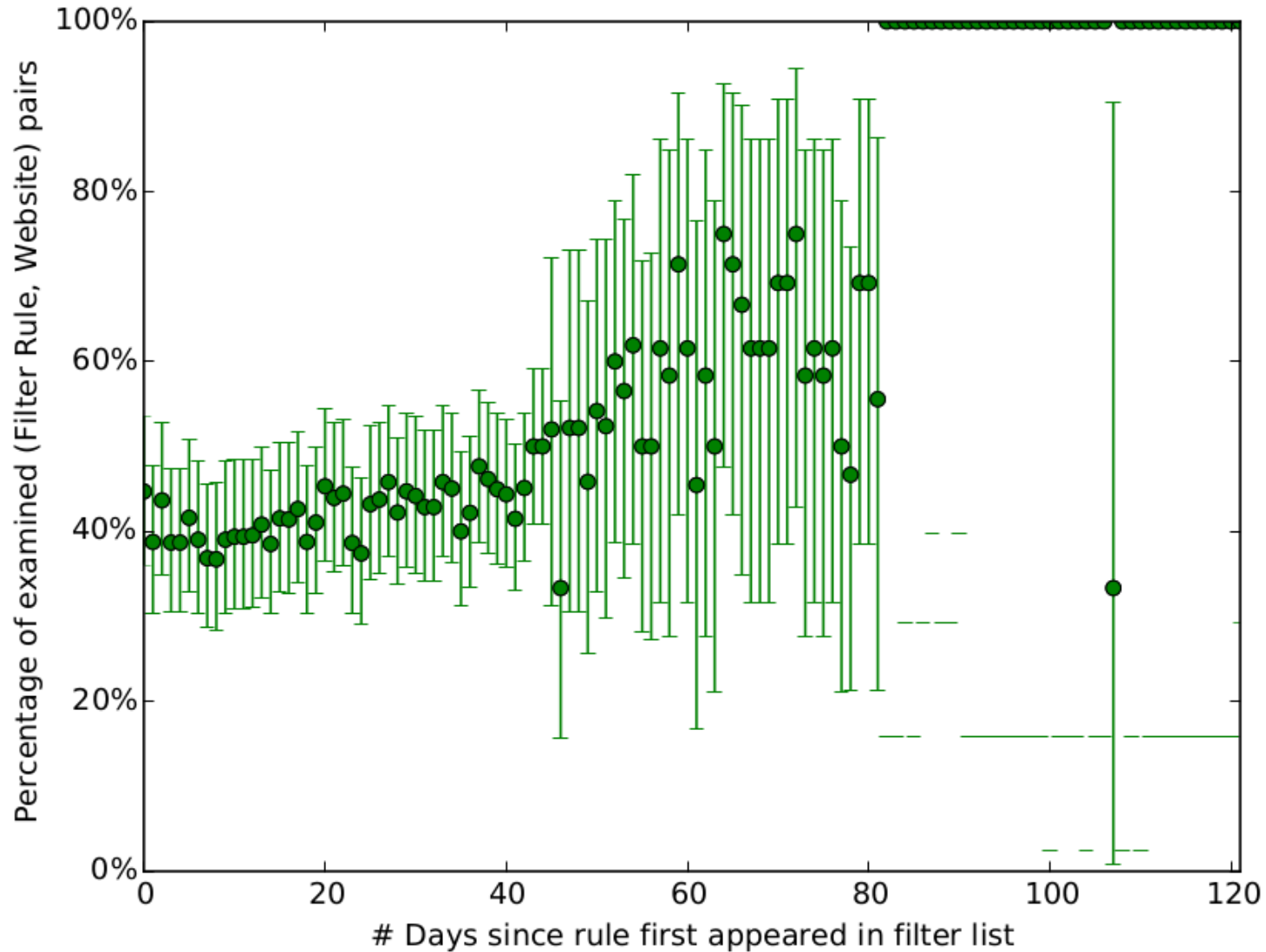


Alexa Top 5K



Targeted sites

Results: Anti-adblock-killer



Results: Anti-adblock-killer

...no effect...

Conclusions

- Easylist rules become less effective
 - About 0.13% per day, ~15% in the period of observation
- No discernible effect wrt. Anti-adblock-killer
- Advertisers care about easylist, not about these lesser-known, lesser-used lists

Bedankt voor de aandacht!

