

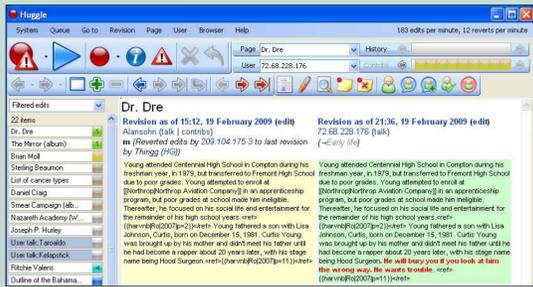
# The Social Roles of Bots and Assisted Editing Tools

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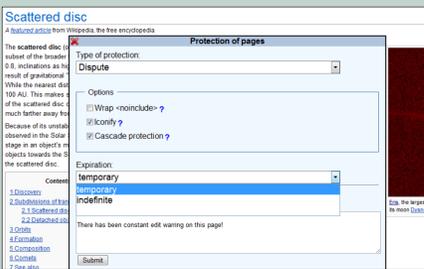
## The Project:

This project investigates various software programs as non-human social actors in Wikipedia, arguing that their influence must not be overlooked in research of the on-line encyclopedia project. Using statistical and archival methods, the roles of assisted editing programs and bots are examined. First, the proportion of edits made by these non-human actors is significantly more than previously described in earlier research. Second, these actors have moved into new spaces, changing not just the practice of article writing and reviewing, but also administrative work.

## Background: What are Bots and Assisted Editing Tools?



Reviewing an edit in a queue with Huggle



Requesting page protection with Twinkle

Bots – short for ‘robots’ – are fully or semi-automated software agents that perform algorithmically-defined tasks involved with editing, maintenance, and administration in Wikipedia. There are over 1,000 bots in Wikipedia, which perform a wide variety of tasks, such as:

- Importing open or public domain information into relevant articles, like census data into city articles (Rambot)
- Reviewing every edit made in real time, reverting blatant incidents of spam and vandalism. (Cluebot, AntiVandalBot)
- Reviewing pages for copyright violations (CorenSearchBot)
- Helping admins sort through requests (AIV Helperbots)

Assisted editing tools, such as Huggle (top) and Twinkle (bottom), extend the MediaWiki interface. They allow users to perform actions quickly and easily:

- View all edits made to Wikipedia in a real time queue (Huggle, Lupin’s tool)
- Revert an edit with the click of a single button (Huggle, Twinkle)
- Leave templated messages for problematic users (Huggle, Twinkle)
- Issue various requests for administrative action (Huggle, Twinkle)
- Create regular-expression based filters for reviewing edits (Huggle, AWB)

## Historical Editing Statistics

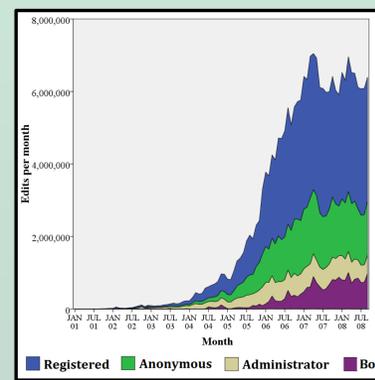
Statistics were determined from database dumps provided by the Wikimedia Foundation. Bots have grown substantially in recent years:

- As of 2009, bots make about one million edits per month (16.33% of total edits).
- Bot growth – along with total edit count and counts for user types – appears to have plateaued in recent years.
- The rise in bot edits has been accompanied by a corresponding decrease in edits by administrators.
- Early bots, such as Rambot (2002), made a wide number of edits proportionally, but pale in contrast to current levels.

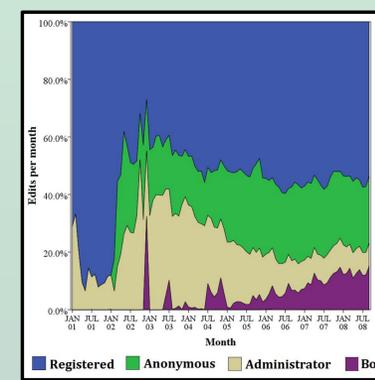
## Recent Editing Statistics

Statistics were determined from a bot, written using the SxWiki framework that captured every edit to Wikipedia in a two month period - 12,352,612 edits. To determine assisted edits, edit summaries were coded.

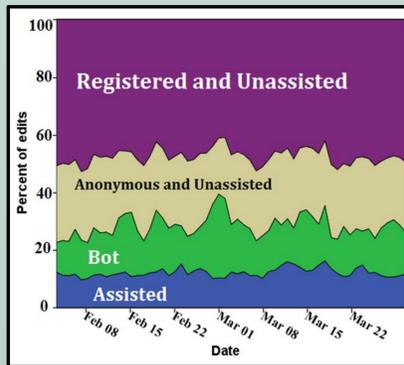
- 12 percent of all edits to Wikipedia in this time period were made with assisted editing tools.
- Proportionally, assisted edits are relatively stable on a day-to-day basis, unlike bots and administrative edits.
- Many different tools are in use, with five main tools.
- The three most popular tools (Huggle, AutoWikiBrowser, and Twinkle) are unofficial and not part of the MediaWiki platform.



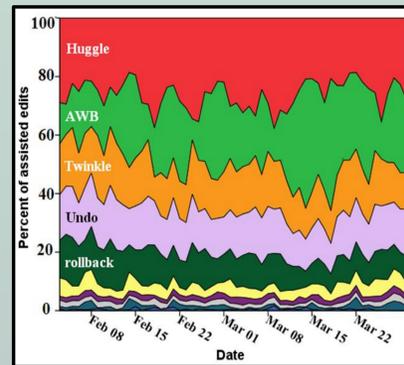
Total edits stratified by user type, raw



Total stratified by user type, proportional

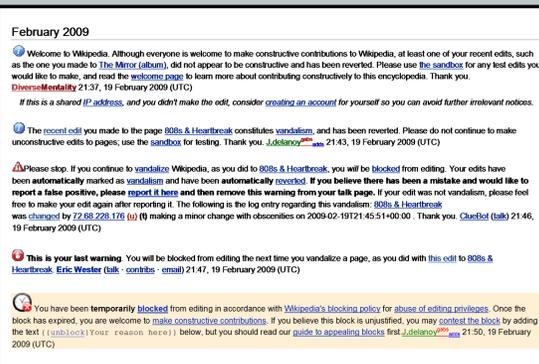


Proportion of all edits by user type

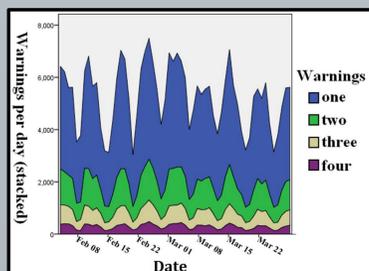


Proportion of assisted edits by program

## Administrator Intervention against Vandalism: The Growing Roles of Bots and Tools in Administrative Work



User talk page of a blocked vandal with four warnings



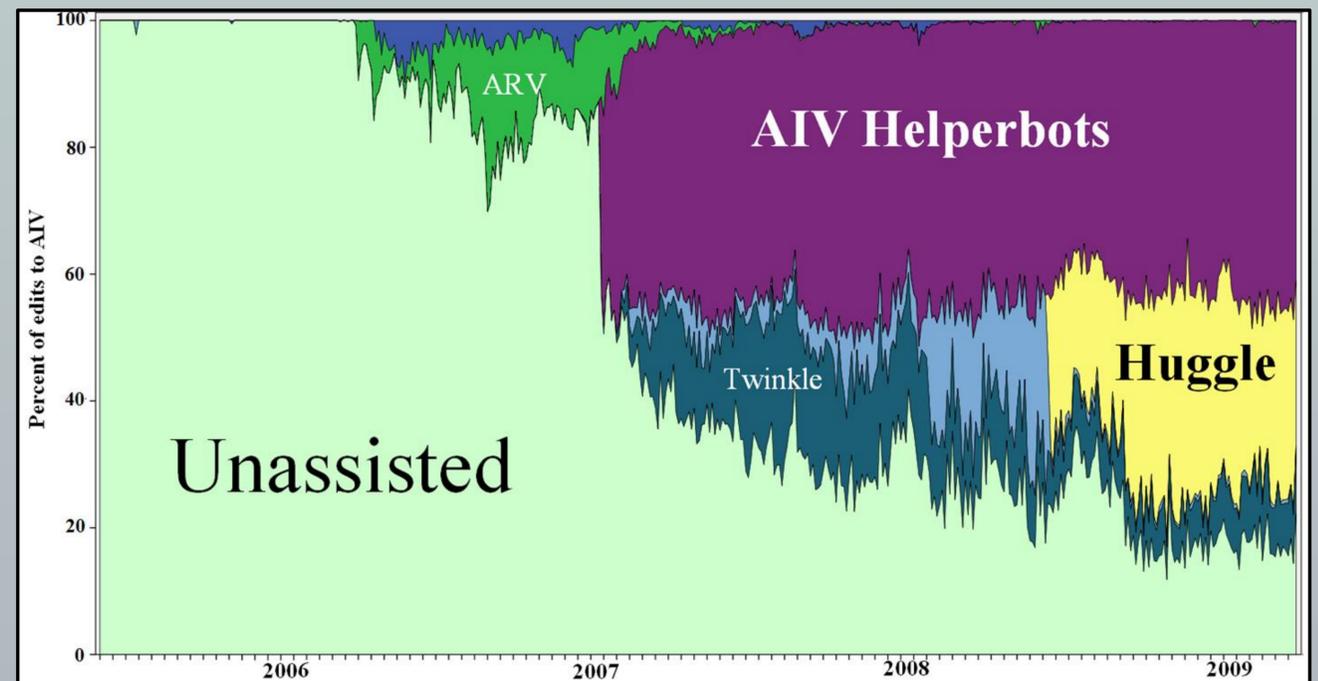
Number of warnings issued by bots and assisted tools

In Wikipedia, ‘vandal fighters’ are some of the most active users of bots and assisted editing tools. In order to cope with vandalism, they have developed a system for coordinating the distributed work involved with identifying and banning a vandal, using warnings left to vandals on their talk pages (see top left).

Typically, administrators will not ban users unless they have been sufficiently warned (usually four times) on their user talk page. Vandal fighters have therefore written hundreds of templated warnings, divided into four levels of severity and tone. While there are many different vandal fighting tools and bots, they all tend to issue these warnings to vandals in a similar process:

1. A vandal fighter or bot identifies an edit as vandalism and reverts it.
2. The software retrieves the previous warnings (if any) left for the user who made the vandalous edit, taking the date issued into account.
3. If a recent warning has been left, the next highest severity is issued.
4. If four warnings have been left, the user is reported to AIV (see right).
5. Administrators patrol AIV, review requests, and take appropriate action.
6. Bots remove fulfilled requests at AIV and notify admins of backlogs.

As the chart to the bottom-left shows, bots and assisted editing tools leave thousands of warnings each day. It appears that such warnings fulfill their intended purpose, deterring many users from committing further vandalism, as the frequency of warnings has an inverse relationship to the severity level.



The above graph is a proportional representation of edits to Administrator Intervention against Vandalism (AIV), showing the prevalence of assisted and automated tools. In this administrative space, the percentage of unassisted edits has clearly declined.