Provenance and Trust in Volunteered Geographic Information: The Case of OpenStreetMap
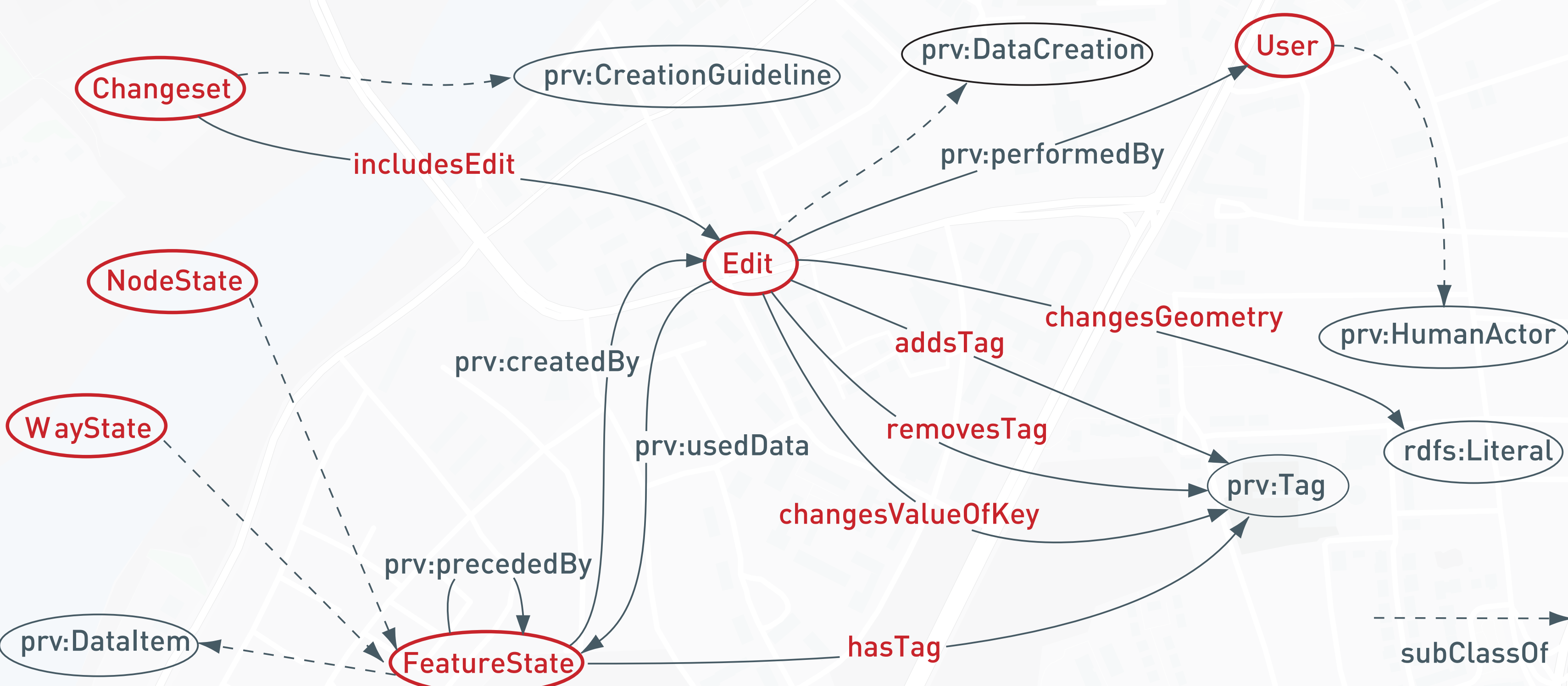
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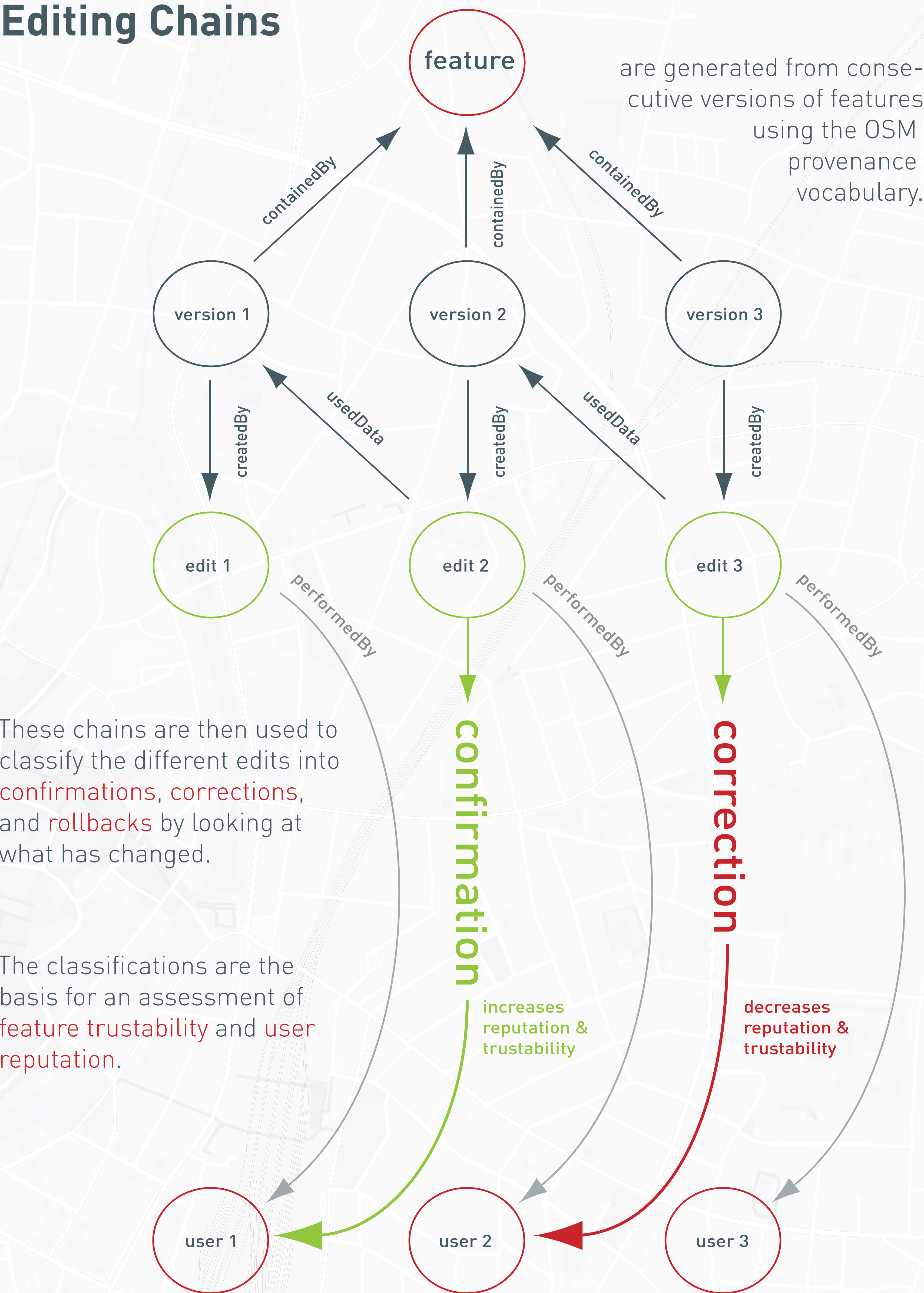johannestrame } @uni-muenster.de
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Abstract

Volunteered Geographic Information (VGI) is increasingly attracting attention for professional use. The growing number of applications and projects building on OpenStreetMap (OSM) make data quality an important issue. As traditional criteria for data quality do not apply for OSM, we propose to use the trustworthiness of features in OpenStreetMap as a proxy function for data quality. Similar to previous approaches developed for Wikipedia, the features' trust ratings are computed solely from their provenance. We look for specific patterns, such as rollbacks or deletions, that emerge when single features in OSM develop over time with input from different users. The trust ratings follow arguments about the patterns' implications for the trustworthiness of a feature and the contributors' reputation.

OpenStreetMap Provenance Vocabulary

Editing Chains

are generated from consecutive versions of features using the OSM provenance vocabulary.

These chains are then used to classify the different edits into confirmations, corrections, and rollbacks by looking at what has changed.

The classifications are the basis for an assessment of feature trustability and user reputation.

confirmation increases reputation & trustability

correction decreases reputation & trustability

Trustability Annotations

support queries for trustworthy features.

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@prefix dc:  <http://purl.org/dc/terms/#>.

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  osp:hasTag
    <http://xmpl.org/resource/tag/amenity/cafe>    [0.9],
    <http://xmpl.org/resource/tag/smoking/no>      [0.3].
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