

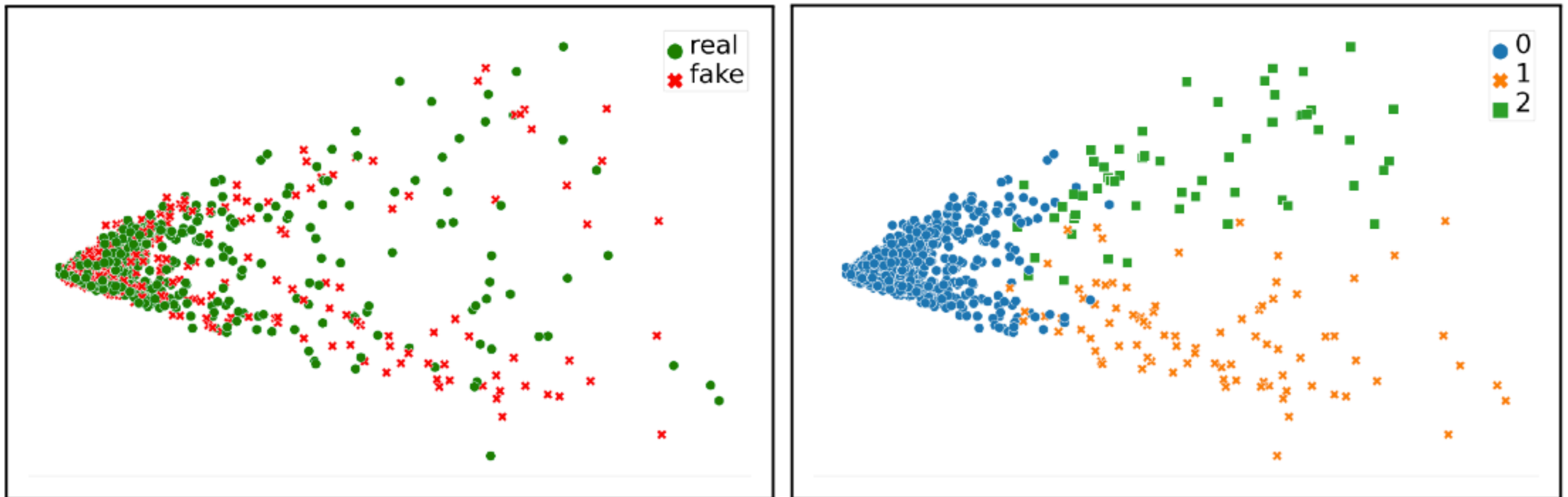
# Discussion

## RQ3: Representation Learning – Intrinsic Evaluation

- Verify **how generalizable** the minimally supervised **news representations** are for the fake news detection task.
- First optimize both GCN and FANG on 30% of the training data to obtain news representations.
- Then cluster these representations using an unsupervised clustering algorithm OPTICS, measure the **homogeneity score** – the extent to which clusters contain a single class.
- The higher the homogeneity score, the more likely the news articles of the same factuality label are to be close to each other, which yields the higher quality representation.

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2D PCA plot of GCN's representation, Homogeneity score: 0.0006 (no correlation exists)