

How Similar are Poodles in the Microwave?

Classification of Urban Legend Types

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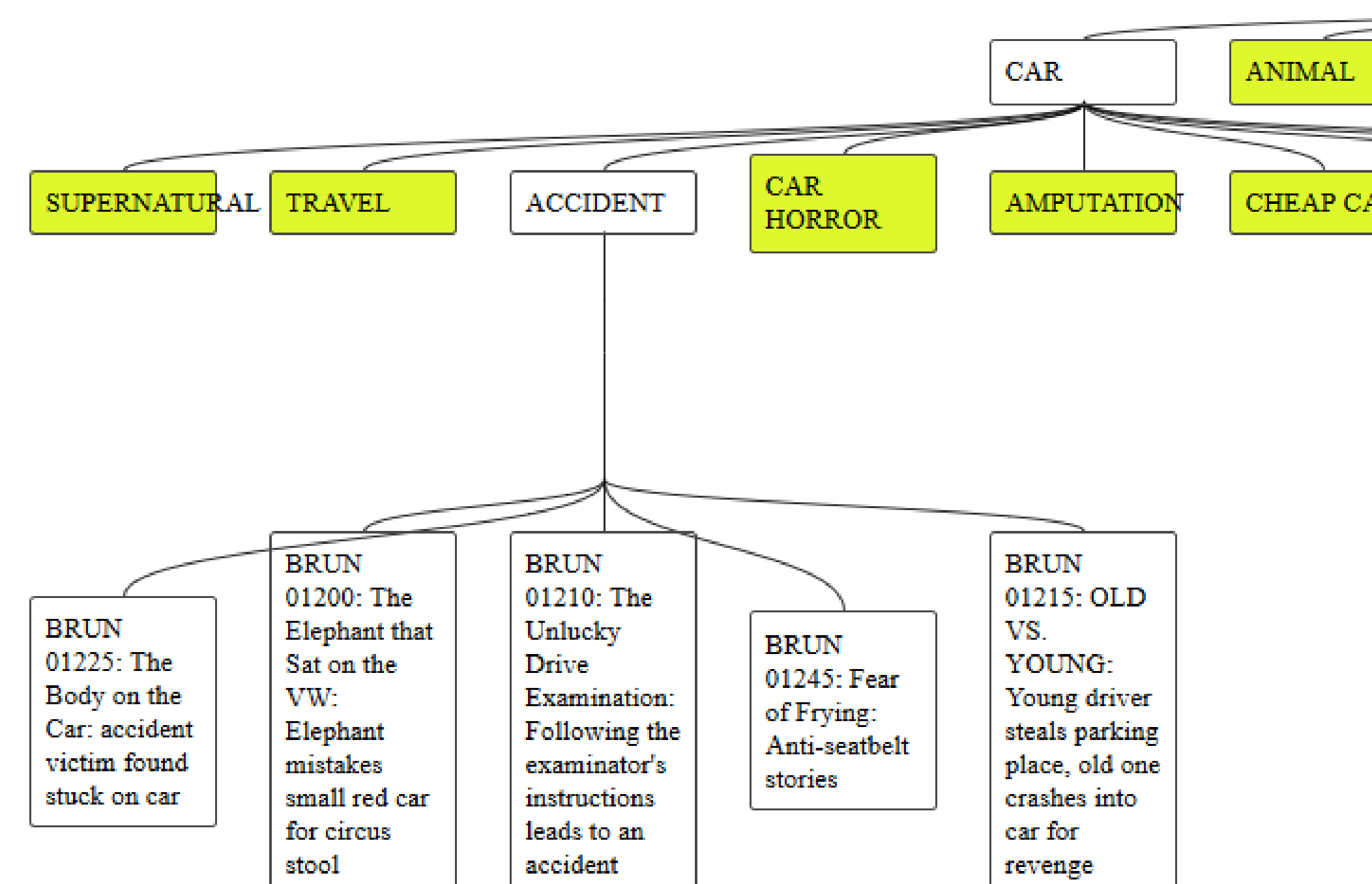
Research Question:

How can we automatically classify urban legends, and how can users interact and work together with a (hierarchical) classifier?

I. The Data

Urban legends: sensational stories that travel quickly from person to person. The "Verhalenbank" collections of the Meertens Institute has 3,000, of which 2299 have **source labels** and 1155 have **brunvand labels**.

- **Brunvand category**, a category of story types made by folklorist Jan Harold Brunvand (Brunvand, 2002). Brunvand types classifies each urban legend in main ("HORROR"), subtype ("BABYSITTER"), and lastly type ("The Babysitter and the Man Upstairs").
- **Source type**: the type of text the urban legend is taken from. This category has **10 labels**: internet, article, letter, oral interview, television, e-mail, newspaper, fax, book, and questionnaire.

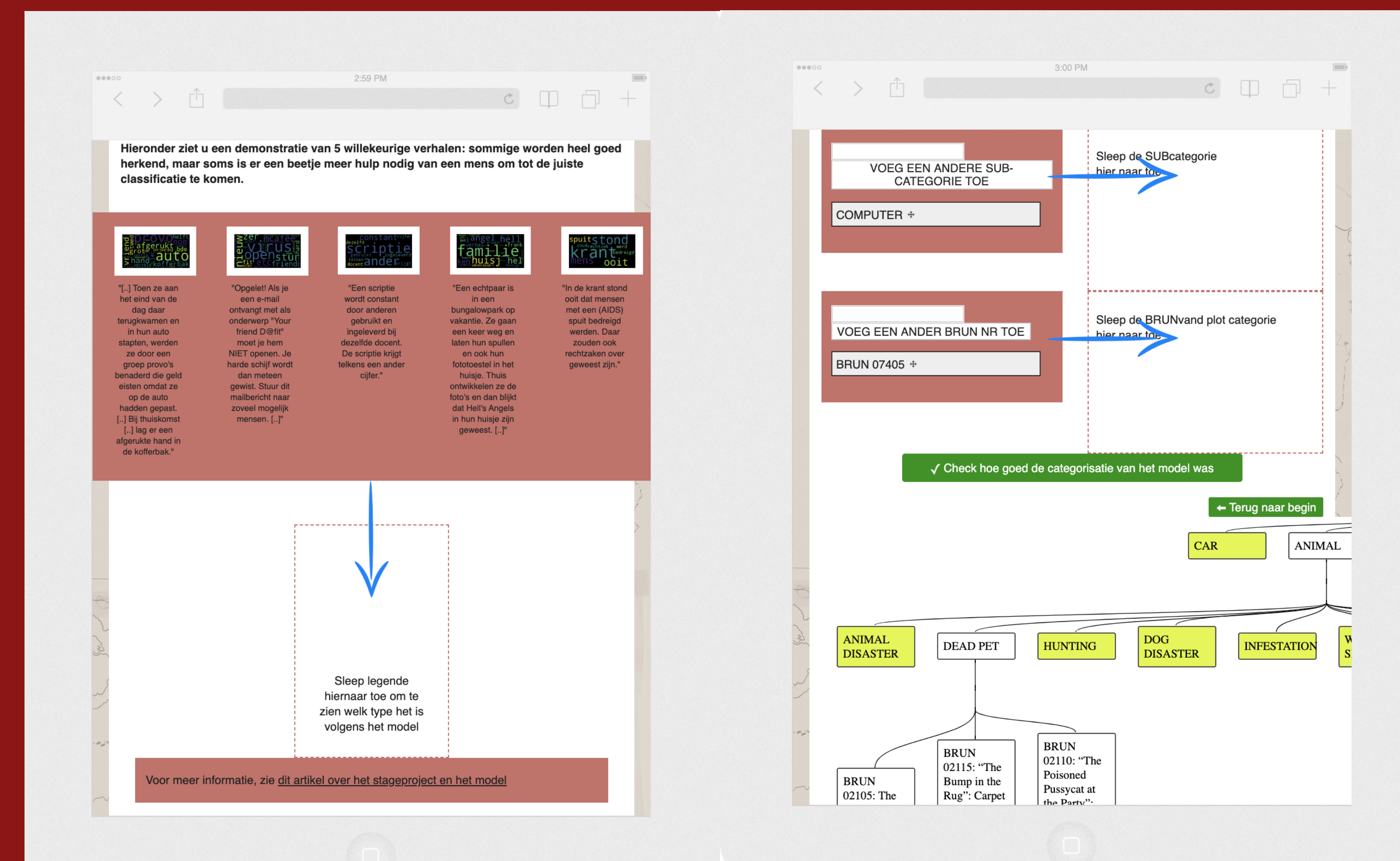


V. Conclusion

* Urban Legends are difficult to classify due to systematic source noise from the **textual source of urban legends**

* Hierarchical classification does not offer better performance than non-hierarchical models from earlier literature (Nguyen et. al. 2013)

* However, hierarchical classification may help user and model work together finding the right answer, correcting the model if it makes a mistake in a lower layer, see demo below:



References and Sources

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II. Noise: the Puma on the Veluwe

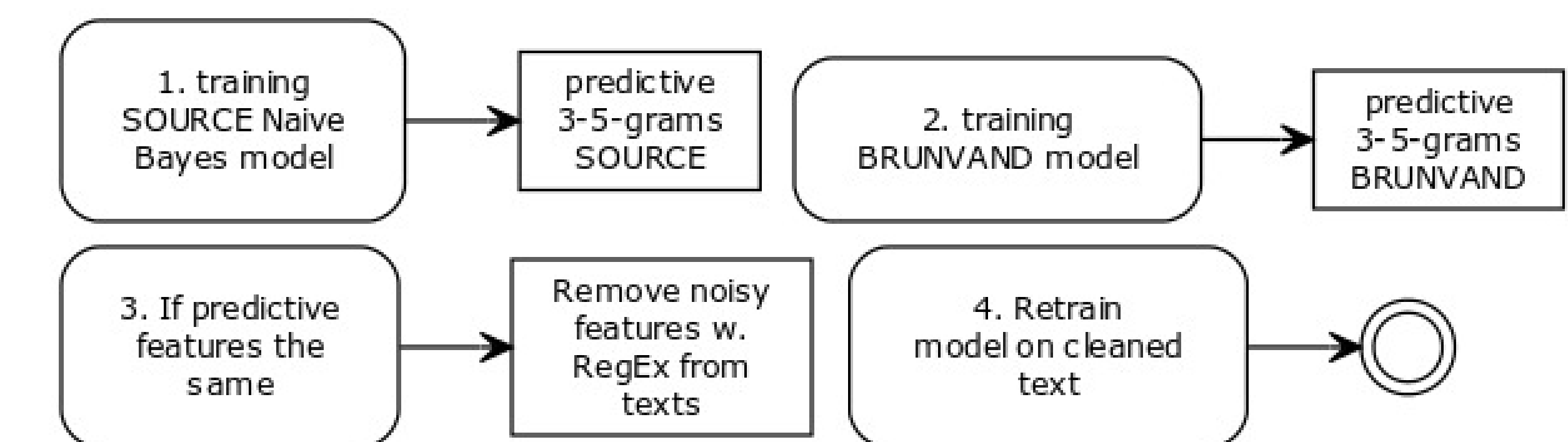
■ First Naive Bayes classifications in Quoll (see below) showed a confound: words related to Brunvand class (e.g. 'ANIMAL') were also related to source (e.g. 'INTERNET'), because the majority of texts of one Brunvand type had one specific **genre-like source**.

■ tf-idf weighting did not help combat the systematic noise

■ Examples:

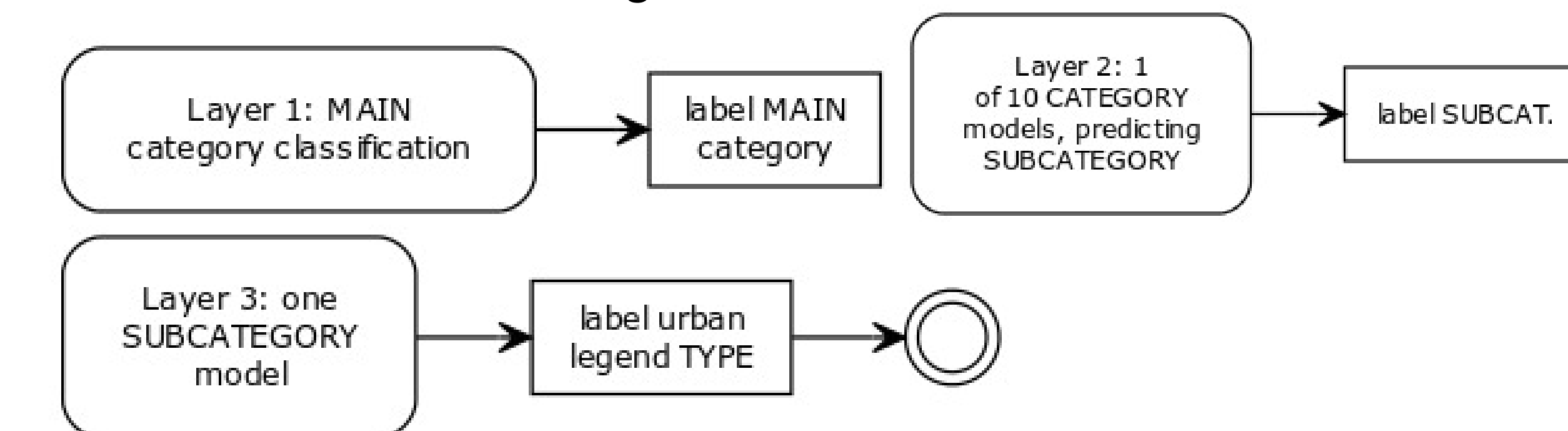
* ANIMAL -> internet text, n-grams such as 'on the Veluwe', '21 April 2011'

* BUSINESS -> email texts, n-grams such as 'forward this', 'groetjes'



III. Method: classification

Hierarchical w. 954 urban legends & SVM :



IV. Results

Hierarchical model, on N = 201 random testset:

classifier	Accuracy (10 CV)	F1 score (macro)	F1 score (micro)
Level 1: main category, 10 labels	.59	.57	.67
Level 2: Sub category 43 labels	.53	.34	.46
Level 3: Brunvand level, 176 labels	.32	.23	.36