Monthly Report on "An Extensible Model for Deduplication of the GDELT Events Database"

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Progress and Plans

1. Description of progress made against each deliverable during the reporting period

   Casey has created a framework to compare the resulting posterior probabilities of a Bayesian hierarchical deduplication model using the uniform prior of Steorts, Hall, and Fienberg (2016) and one using the partitioning prior of Sadinle (2014). We have spent September looking at numerical comparisons of small toy size models for completeness, as well as a larger, more realistic scenario.

   Our goal with this exploration is to choose a suitable model for deduplication of the GDELT events data, while a secondary goal is to choose a suitable model that is a good candidate for extension to a streaming version.

2. Brief description of significant results

   [Casey, please fill this section with a description of the small experiments you've done and add a plot with explanation. We will also try to add the work you are doing this week here if you finish in time. If not, don't worry we can add it next month.]

3. Planned activities for the following reporting period

   We will choose a final model and do preliminary work to prepare the GDELT data for deduplication.

4. List of any LAS-funded trips during reporting period, with description of work presented

None.

5. Description of any significant meetings/events held (e.g., a focused discovery activity, LAS Symposium) or conducted related to this task

   Casey and I meet weekly for one hour.

Issues

1. Progress on/results obtained related to previously identified problem areas

   None.

2. Proposed significant changes to your methodology, goals, milestones, or deliverables

   None.

3. New challenges affecting technical performance or schedule, with background

   None.

4. Has anything happened to impact your anticipated schedule?

   No.

References

Sadinle, Mauricio. 2014. "Detecting Duplicates in a Homicide Registry Using a Bayesian Partitioning Approach." *The Annals of Applied Statistics* 8 (4). Institute of Mathematical Statistics: 2404–34.

Steorts, Rebecca C, Rob Hall, and Stephen E Fienberg. 2016. "A Bayesian Approach to Graphical Record Linkage and Deduplication." *Journal of the American Statistical Association* 111 (516). Taylor & Francis: 1660–72.