Predicting the Course of Inter-state Disputes

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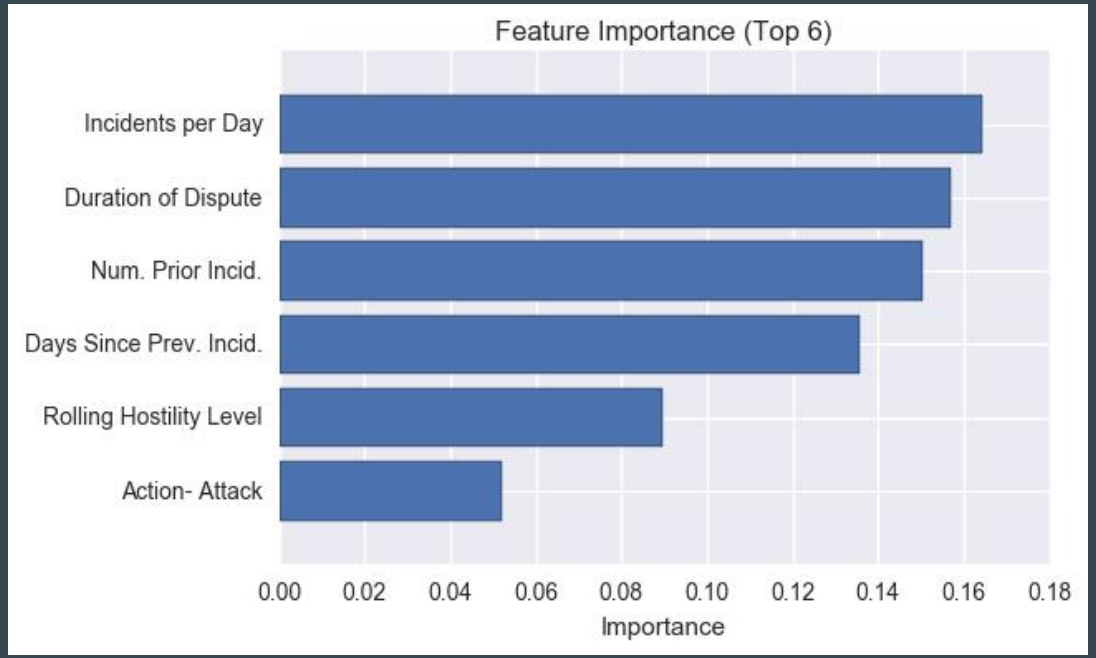
by Tim Martin

Number of Disputes from 1992-2010 by Country

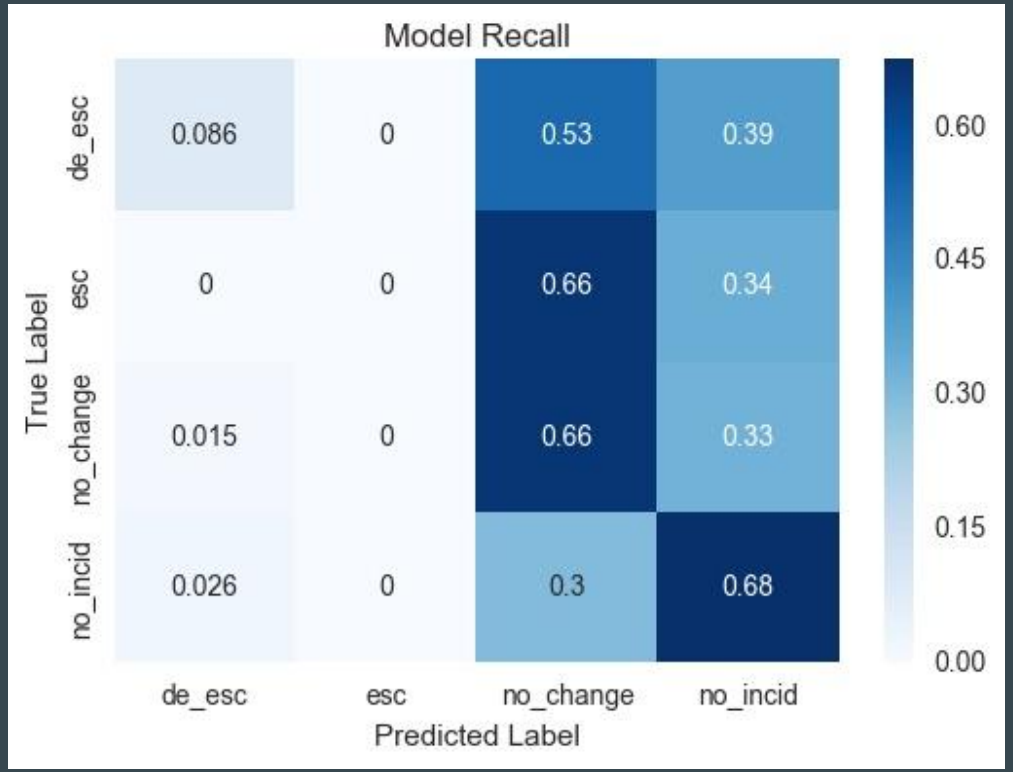
Random Forest Model

Trained with 200 trees with balanced class weights

Test accuracy: 55.8%
Recall: 56%
Precision: 50%



Recall by Class Label



Recall: 56%

Conclusion

The Goal:

- Predict how interstate dispute hostility levels would change within 30 days

Result:

- Test accuracy: 55.8%
- Recall: 56%
- Precision: 50%


Thank you!

Appendix

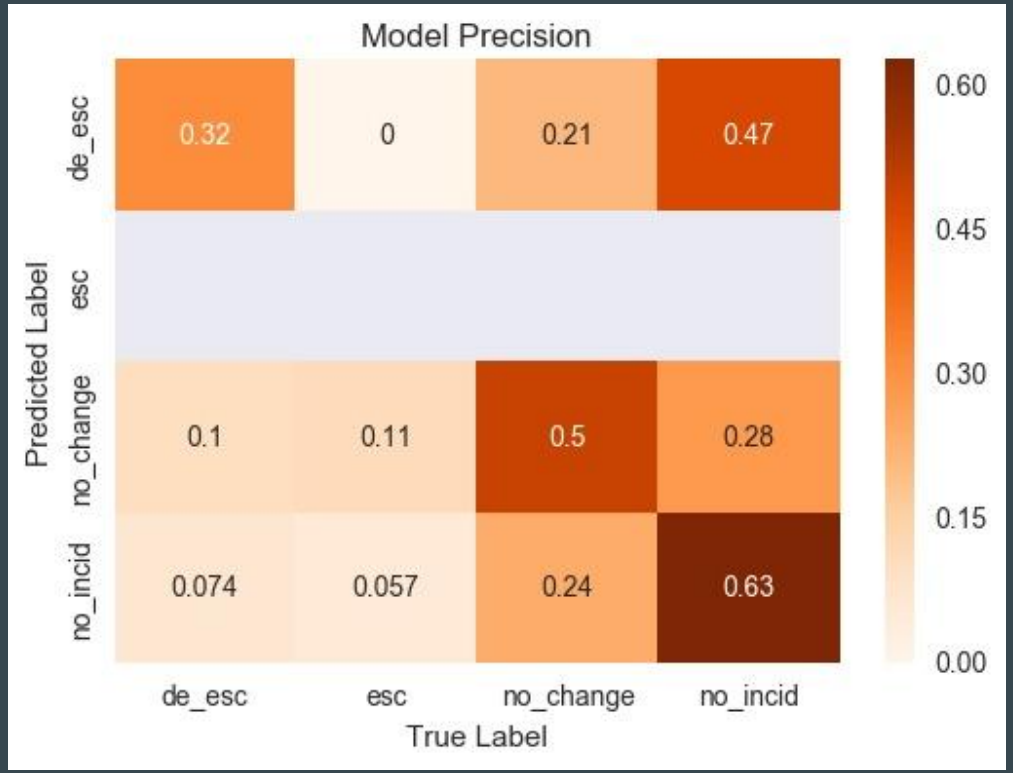
The Data

Date	Hostility Level	Action	Num States on Side A	Fatalities	Days since prev incident	Duration of Dispute	Change in Hostility Level
2010-09-07	4	Seizure	1	0	N/A	0 days	De-escalate
2010-09-24	3	Show of force	1	0	17 days	17 days	No change
2010-09-24	3	Show of force	1	0	0 days	17 days	No change
2010-10-24	3	Show of force	1	0	30 days	47 days	No change
2010-11-20	3	Show of force	1	0	27 days	74 days	No change
2010-11-28	3	Show of force	1	0	8 days	82 days	No incidents

Change in Hostility Level - Class Balance

No Change	45%
No Further Incidents	36%
De-escalate	10%
Escalate	9%

Precision by Class Label



Precision: 50%

Final Remarks

Ideas for future analyses:

- Use data that is more granular and immediate
  - Look at behavior of financial markets during conflict
  - NLP on news articles, or simple statistics on number of news articles on a conflict
- Limit analysis to a particular type of dispute
  - E.g. border disputes
  - Between Country A and Country B