

# Risk Analysis for Intellectual Property Litigation

Mihai Surdeanu\*<sup>#</sup>, Ramesh Nallapati\*<sup>#</sup>,  
George Gregory<sup>#</sup>, Joshua Walker<sup>#</sup>,  
Christopher D. Manning\*

\* Stanford University

<sup>#</sup> LexMachina ([www.lexmachina.com](http://www.lexmachina.com))

# Litigation Risk Analysis

Estimate the likelihood of winning at  
the time of filing

Why:

Should I settle?

Does attorney choice matter?

Where do I file a defensive case if XYZ Co. plans to sue me?

Can I win?

Lex Machina

Logged in as mihai (Log out) →

Search:

Statistics

Expand/Collapse

**Intuitive Surgical, Et Al v. Computer Motion Inc.**  
 U.S. District Court for the District of Delaware (DED)  
 Case No: 1:01-cv-00203-SLR

**Outcome Summary**

PI, C  
 T&J  
 PI, LS

**Case Entities**  
 Past behavior may influence the current outcome

**Case Events**  
 Can be used to estimate merits

**Essential Data**

Nature of Suit	830 (Patent)
----------------	--------------

**Termination** (2.4 years)

**Tags** Trial, Patent

**Judge**

**Parties**

- Computer Motion Inc.  
(Defendant, Counter-claimant)
- International Business Machines Corporation  
(Plaintiff, Counter-defendant)
- Intuitive Surgical Inc.  
(Plaintiff, Counter-defendant)

**Counsel**

- Fish & Richardson, P.C.  
Intuitive Surgical Inc.
- Richards, Layton & Finger  
International Business Machines Corporation

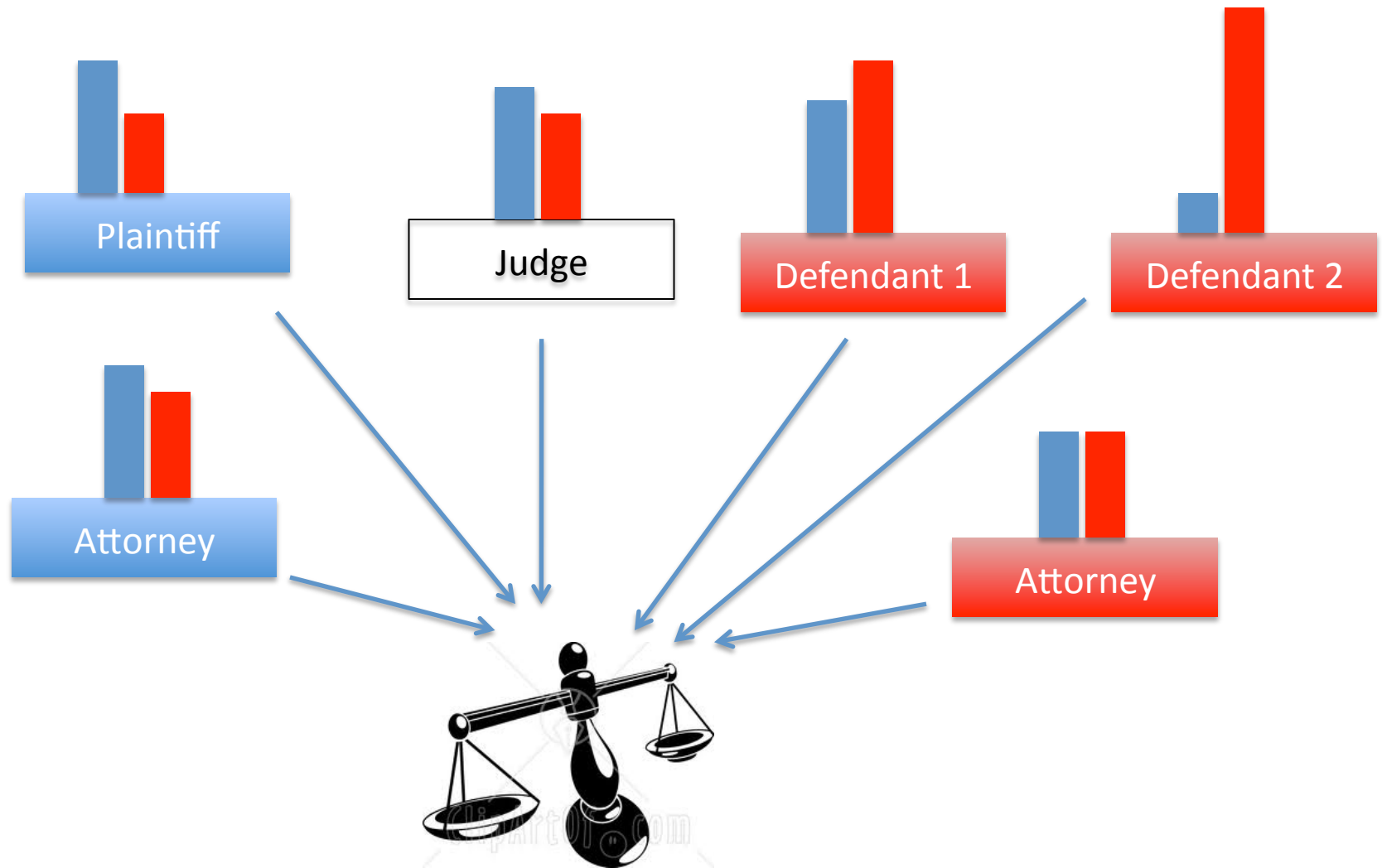
**Docket Entries** (54 per day)

#	Date Filed	Text
408	9/20/2007	ACKNOWLEDGMENT OF RECEIPT OF EXHIBITS. Acknowledgment filed by Intuitive Surgical Inc. (Entered: 09/20/2007)
-	7/19/2006	RECTIFYING ENTRY: The Sealed Court Order entered on 7/19/06 (D.I. 408) was docketed in error. D.I. 408 has been deleted from the docket. (Entered: 07/19/2006)
-	5/26/2004	SEALED DOCUMENTS, D.I. 314 AND 320, RETAINED IN THE CLERK'S OFFICE FOR SAFEKEEPING (rbe) (Entered: 05/26/2004)
407	3/2/2004	Return Acknowledgment - Sealed documents returned to and received by J. Meli, Jr., Fish & Richardson, P.C. (fmt) (Entered: 03/02/2004)

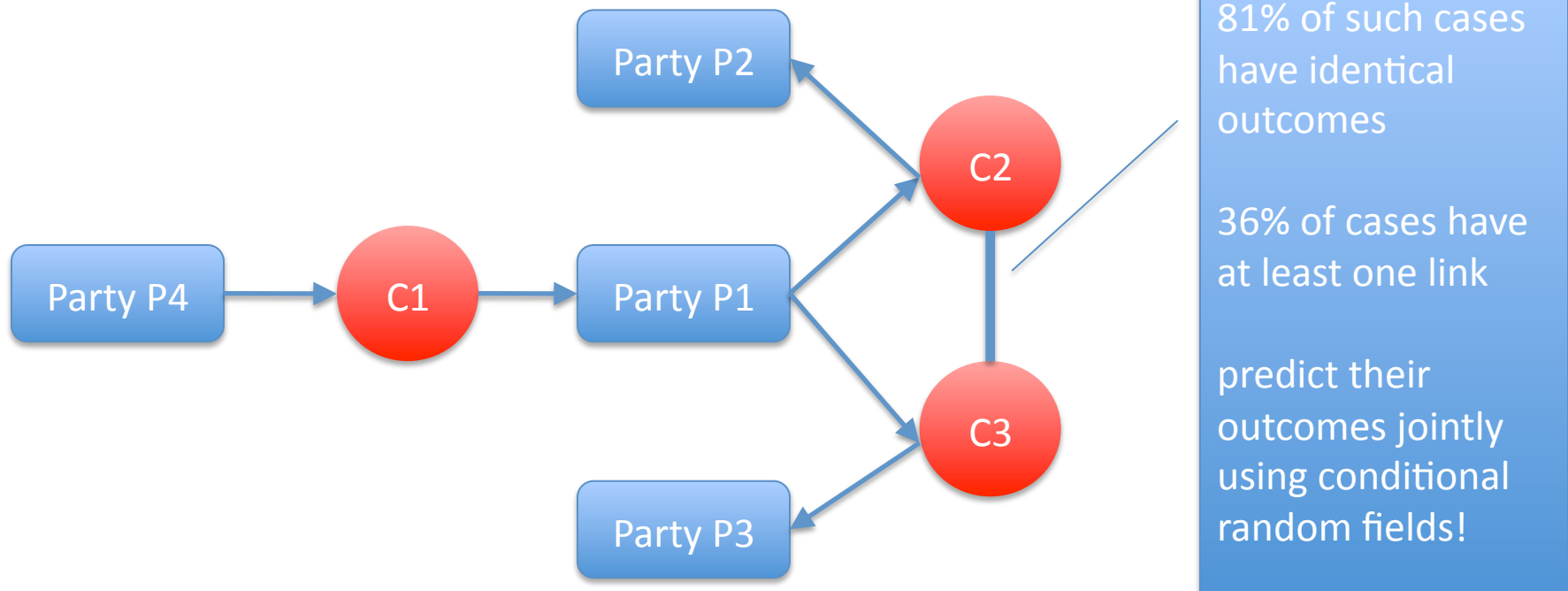
# How?

- 2-step process:
  - Step 1: mine all the *previous* and *concurrent* interactions between the involved entities
    - Parties, attorneys, law firms, judges, districts
    - Not trivial: requires entity resolution
  - Step 2: detect patterns in these interactions and extrapolate to the new case
    - Logistic regression or conditional random fields

# Using Historical Information



# Exploiting the Correlation between Concurrent Cases



# Features

- Past performance:
  - Win rates in a given role (plaintiff or defendant)
  - Win rates in any role
  - Frequency of litigation
  - Judge and district bias
- Concurrent information
  - Outcomes of immediate neighboring cases

# The Corpus

20,980 total cases



Cases with polarized outcome	Parties	Attorneys	Law firms	Judges	Districts
4,263	12,270	15,706	5,261	1276	88



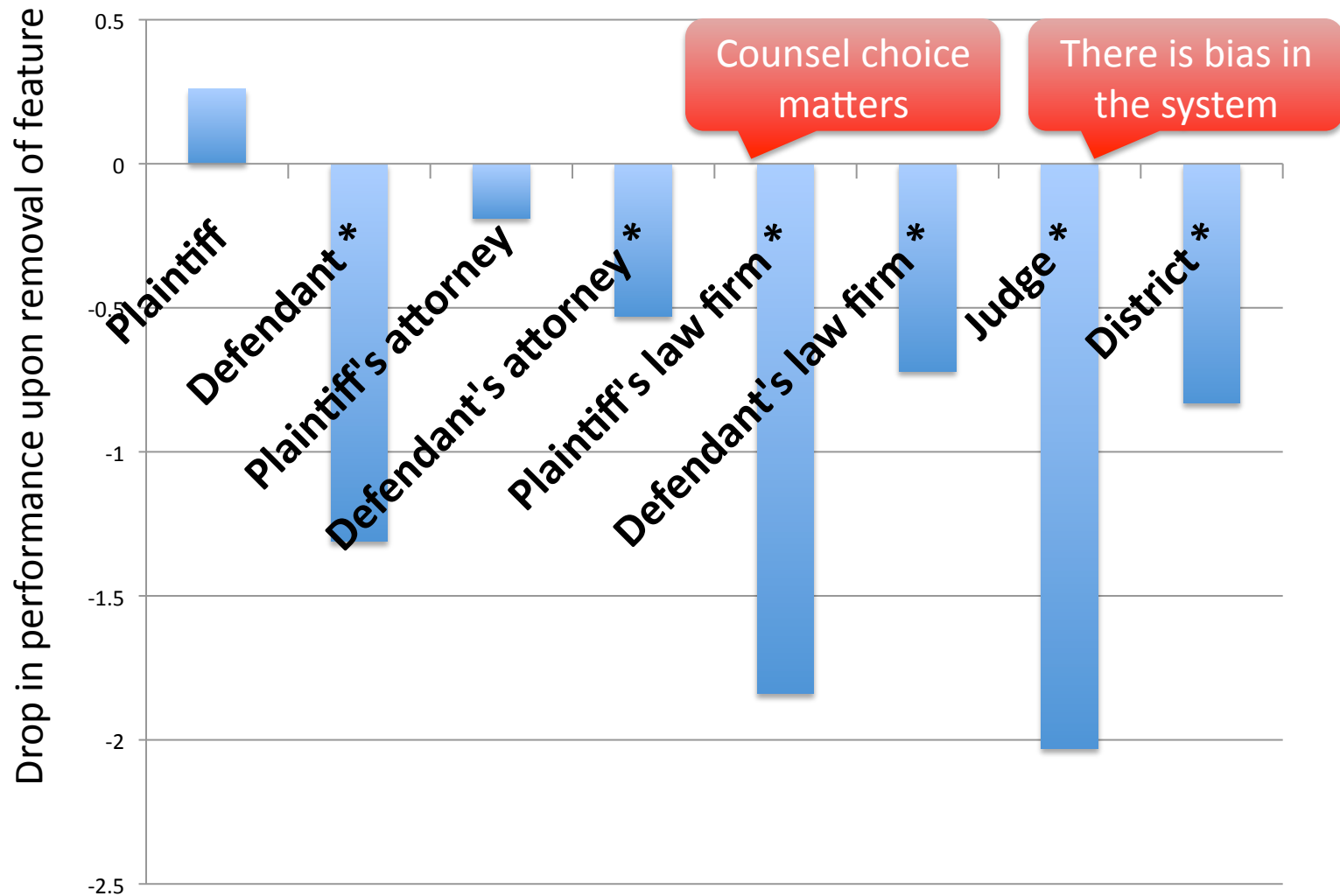
3,243 cases with some historical information



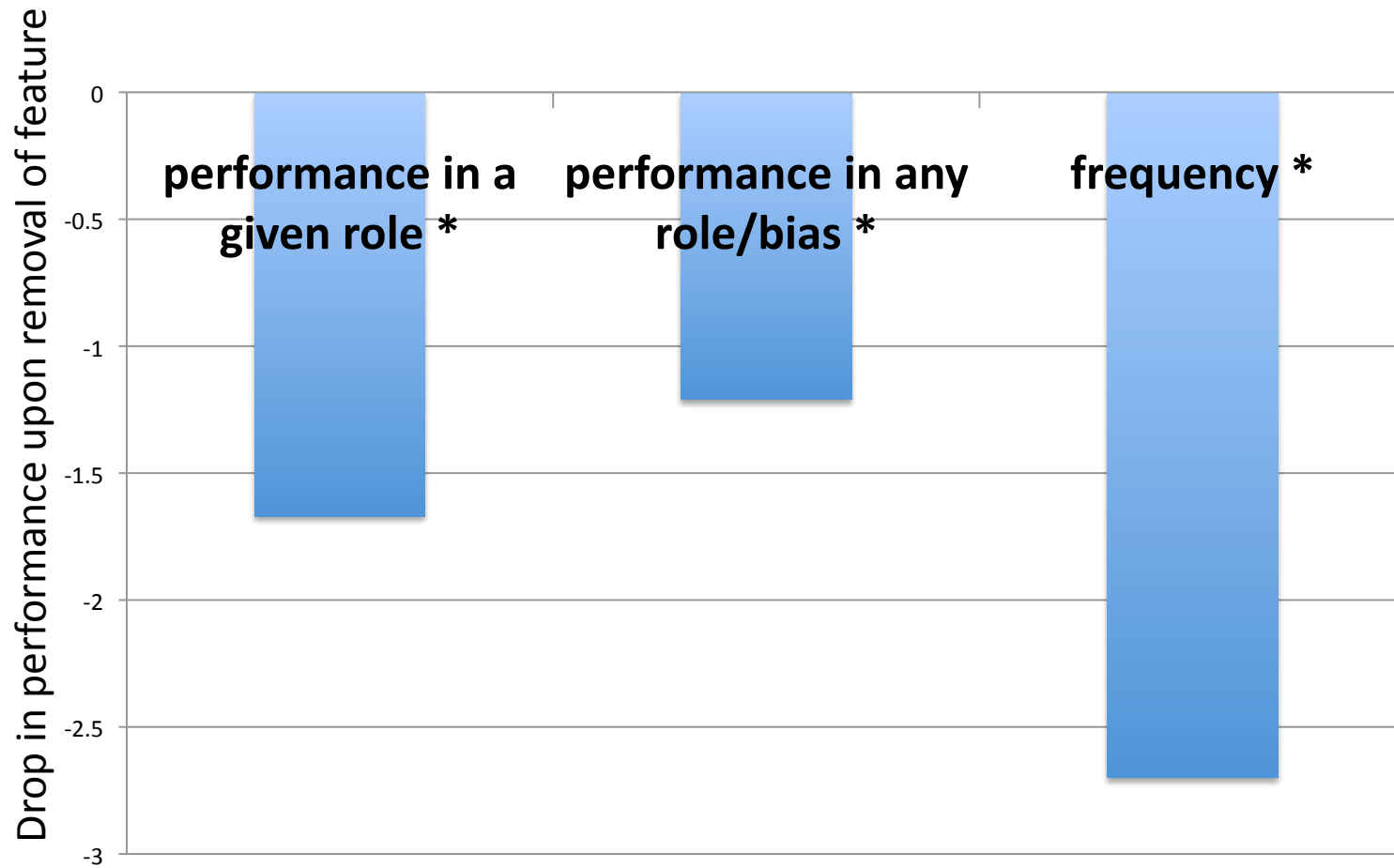
# Overall Results

Baseline (Plaintiff Wins)	Only Past Information	Past and Concurrent Information
52.4	63.4*	<b>64.0*</b>

# Ablation Experiment



# Second Ablation Experiment



# Conclusions

- Assessed the risk for parties involved in IP litigation using only historical and concurrent features of the participating entities
- Applications
  - Help parties involved in an IP lawsuit make well-informed strategic decisions
  - Reduce the number of cases that reach trial → reduce costs for parties and judicial system
- Future work
  - Including estimators of case merits into the predictive model