



The Business Law Section of the State Bar of Texas

Legal Case Use for ArangoDB

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August 5, 2020

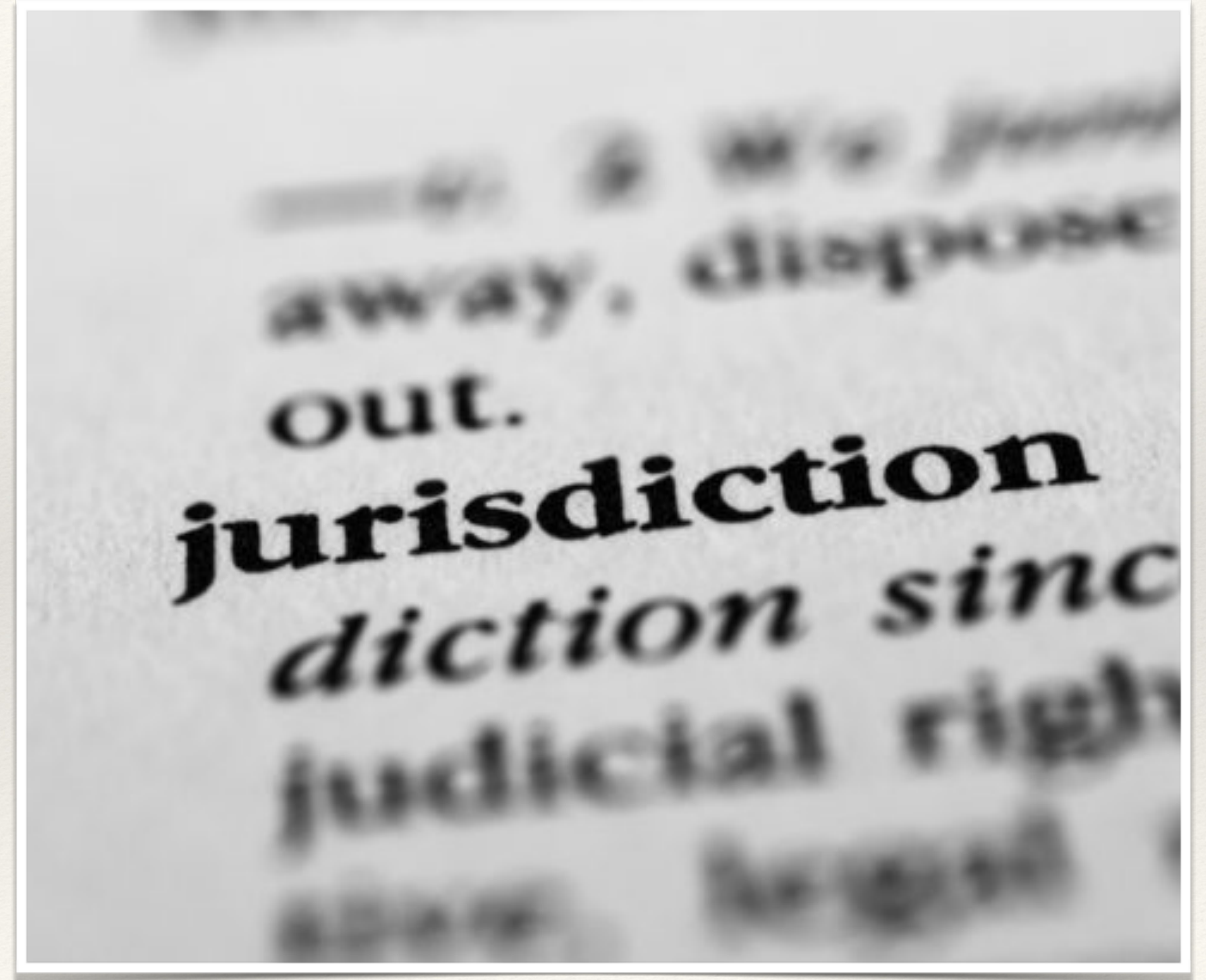
The *Informational* Scope of Law

- ❖ Elements of Law:
 - ❖ Jurisdiction
 - ❖ Topics (broad and detailed)
 - ❖ Opinions & Precedent
 - ❖ Jurisprudence
- ❖ In ArangoDB, each of the above would be a separate collection



Jurisdiction

- ❖ Jurisdiction comes in many forms:
 - ❖ Subject Matter Jurisdiction
 - ❖ Original Jurisdiction
 - ❖ Territorial Jurisdiction
 - ❖ Appellate Jurisdiction
 - ❖ Concurrent Jurisdiction
 - ❖ Personal Jurisdiction



Example: Territorial Jurisdiction

- ❖ United States
 - ❖ Texas
 - ❖ Collin County
 - ❖ City of McKinney
 - ❖ 470th District Court
 - ❖ Judge Emily Miskel

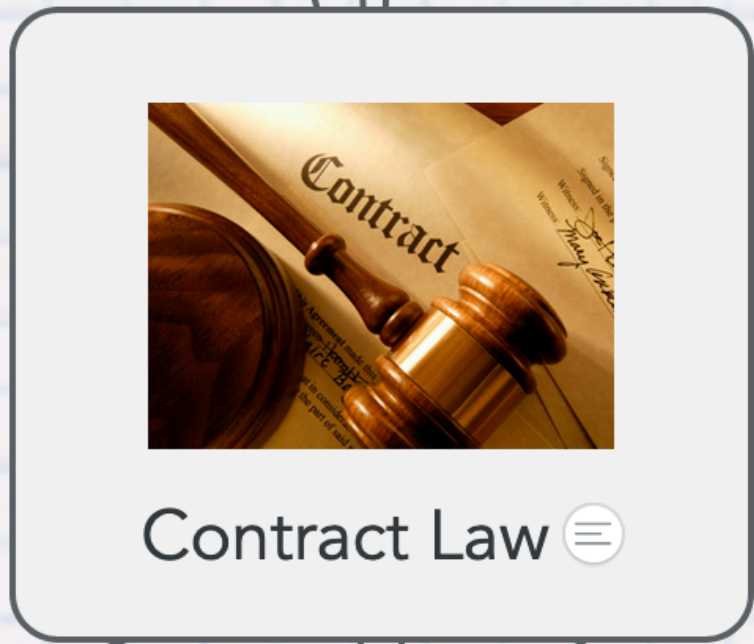


Example: Appellate Jurisdiction

- ❖ 470th District Court
 - ❖ Texas Court of Appeals (5th District)
 - ❖ Texas Supreme Court
 - ❖ Texas Court of Criminal Appeals
- ❖ U.S. District Courts for the Northern District of Texas
 - ❖ U.S. Court of Appeals for the 5th Circuit
 - ❖ U.S. Supreme Court



Topics



Vitiating Elements

Misrepresentation

Illegality

Inequality between the parties

Damages

Causation

Remoteness

Cases

Mitigation

Types

Equitable Remedies

Restitution

Rescission

Ratification

Injunction

Special Performance

Termination

Performance

Agreement

Operation of Law

Lapse of Time

Frustration

Statute of Limitation

Form

Simple Contracts

Oral

Written

Simple Contracts

Bilateral

Unilateral

Collateral

Statements That are Not Offers

Invitation To Treat

Request for Information

Counter-Offer

Tenders

Legal Capacity

Genuine Consent

Legality of Purposes

Procedural Requirement Satisfaction.

Proper Form

Privity of Contract

Agency

Opinions and Precedent

Cited By (55)

This case has been cited by these opinions:

[State v. Jennings \(2020\)](#)

[State v. Jennings \(2020\)](#)

[State v. Jennings \(2020\)](#)

[State v. Jennings \(2020\)](#)

[State v. Jennings \(2020\)](#)

[View Citing Opinions](#)

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Authorities (86)

This opinion cites:

[Terry v. Ohio, 392 U.S. 1](#) (1 time)

[Carroll v. United States, 267 U.S. 132](#) (1 time)

[Katz v. United States, 389 U.S. 347](#) (1 time)

[Wong Sun v. United States, 371 U.S. 471](#) (1 time)

[Roe v. Wade, 410 U.S. 113](#) (1 time)

[View All Authorities](#)

Visualizations

[Katz \(1967\) to Carpenter \(2018\)](#)

[United States v. Miller \(1976\) to Carpenter \(2018\)](#)

[Martinez-Fuerte \(1976\) to Carpenter \(2018\)](#)

[Third Party Doctrine - from Miller \(1976\) to Carpenter \(2018\)](#)

[View Full List](#)

☆ **Carpenter v. United States, 138 S. Ct. 2206**

Supreme Court of the United States

Filed: June 22nd, 2018

Precedential Status: Precedential

Citations: 138 S. Ct. 2206, 201 L. Ed. 2d 507, 2018 U.S. LEXIS 3844

Docket Number: 16-402

Supreme Court Database ID: [2017-021](#) 

Author: [John Glover Roberts Jr.](#)

[Download Original](#)

(Slip Opinion)

OCTOBER TERM, 2017

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Syllabus

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, [200 U.S. 321](#), 337.

SUPREME COURT OF THE UNITED STATES

Syllabus

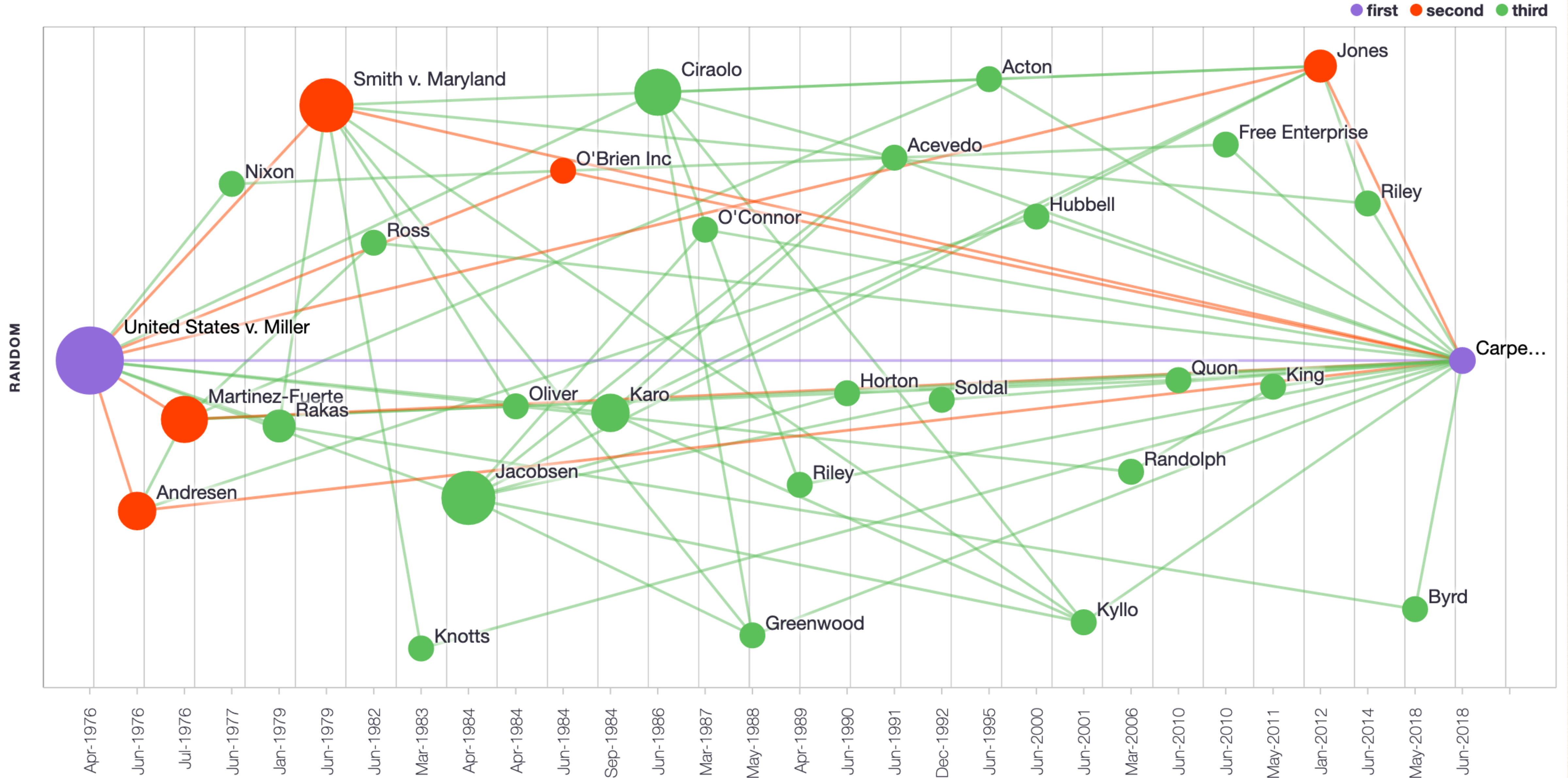
CARPENTER v. UNITED STATES

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR
THE SIXTH CIRCUIT

No. 16-402. Argued November 29, 2017—Decided June 22, 2018
Cell phones perform their wide and growing variety of functions by continuously connecting to a set of radio antennas called “cell sites.” Each time a phone connects to a cell site, it generates a time-stamped record known as cell-site location information (CSLI). Wireless carriers collect and store this information for their own business purposes. Here, after the FBI identified the cell phone numbers of several rob-

1614. United States v. Miller (1976) to Carpenter (2018)

Contains 30 cases starting at **United States v. Miller**, and going to **Carpenter v. United States**.



Current Tools Use a Relational Database

RetentionEvent	
id	AutoField
position	ForeignKey (id)
date_created	DateTimeField
date_modified	DateTimeField
date_retention	DateField
retention_type	CharField
unopposed	NullBooleanField
votes_no	PositiveIntegerField
votes_no_percent	FloatField
votes_yes	PositiveIntegerField
votes_yes_percent	FloatField
won	NullBooleanField

Position	
id	AutoField
appointer	ForeignKey (id)
court	ForeignKey (id)
person	ForeignKey (id)
predecessor	ForeignKey (id)
school	ForeignKey (id)
supervisor	ForeignKey (id)
date_confirmation	DateField
date_created	DateTimeField
date_elected	DateField
date_granularity_start	CharField
date_granularity_termination	CharField
date_hearing	DateField
date_judicial_committee_action	DateField
date_modified	DateTimeField
date_nominated	DateField
date_recess_appointment	DateField
date_referred_to_judicial_committee	DateField
date_retirement	DateField
date_start	DateField
date_termination	DateField
has_inferred_values	BooleanField
how_selected	CharField
job_title	CharField
judicial_committee_action	CharField
location_city	CharField
location_state	USStateField
nomination_process	CharField
organization_name	CharField
position_type	CharField
termination_reason	CharField
voice_vote	NullBooleanField
vote_type	CharField
votes_no	PositiveIntegerField
votes_no_percent	FloatField
votes_yes	PositiveIntegerField
votes_yes_percent	FloatField

CriminalCount	
id	AutoField
party_type	ForeignKey (id)
disposition	TextField
name	TextField
status	SmallIntegerField

CriminalComplaint	
id	AutoField
party_type	ForeignKey (id)
disposition	TextField
name	TextField

Education	
id	AutoField
person	ForeignKey (id)
school	ForeignKey (id)
date_created	DateTimeField
date_modified	DateTimeField
degree_detail	CharField
degree_level	CharField
degree_year	PositiveSmallIntegerField

PoliticalAffiliation	
id	AutoField
person	ForeignKey (id)
date_created	DateTimeField
date_end	DateField
date_granularity_end	CharField
date_granularity_start	CharField
date_modified	DateTimeField
date_start	DateField
has_inferred_values	BooleanField
political_party	CharField
source	CharField

Source	
id	AutoField
person	ForeignKey (id)
date_accessed	DateField
date_created	DateTimeField
date_modified	DateTimeField
notes	TextField
url	URLField

ABARating	
id	AutoField
person	ForeignKey (id)
date_created	DateTimeField
date_modified	DateTimeField
rating	CharField
year_rated	PositiveSmallIntegerField

FinancialDisclosure	
id	AutoField
person	ForeignKey (id)
filepath	FileField
page_count	SmallIntegerField
thumbnail	FileField
thumbnail_status	SmallIntegerField
year	SmallIntegerField

PartyType	
id	AutoField
docket	ForeignKey (id)
party	ForeignKey (id)
date_terminated	DateField
extra_info	TextField
highest_offense_level_opening	TextField
highest_offense_level_terminated	TextField
name	CharField

Role	
id	AutoField
attorney	ForeignKey (id)
docket	ForeignKey (id)
party	ForeignKey (id)
date_action	DateField
role	SmallIntegerField
role_raw	TextField

AttorneyOrganizationAssociation	
id	AutoField
attorney	ForeignKey (id)
attorney_organization	ForeignKey (id)
docket	ForeignKey (id)

School	
id	AutoField
is_alias_of	ForeignKey (id)
date_created	DateTimeField
date_modified	DateTimeField
ein	IntegerField
name	CharField

Court	
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Person	
id	AutoField
is_alias_of	ForeignKey (id)
c_id	CharField
date_created	DateTimeField
date_dob	DateField
date_dod	DateField
date_granularity_dob	CharField
date_granularity_dod	CharField
date_modified	DateTimeField
dob_city	CharField
dob_state	USStateField
dod_city	CharField
dod_state	USStateField
ffc_id	IntegerField
ftm_eid	CharField
ftm_total_received	FloatField
gender	CharField
has_photo	BooleanField
name_first	CharField
name_last	CharField
name_middle	CharField
name_suffix	CharField
religion	CharField
slug	SlugField

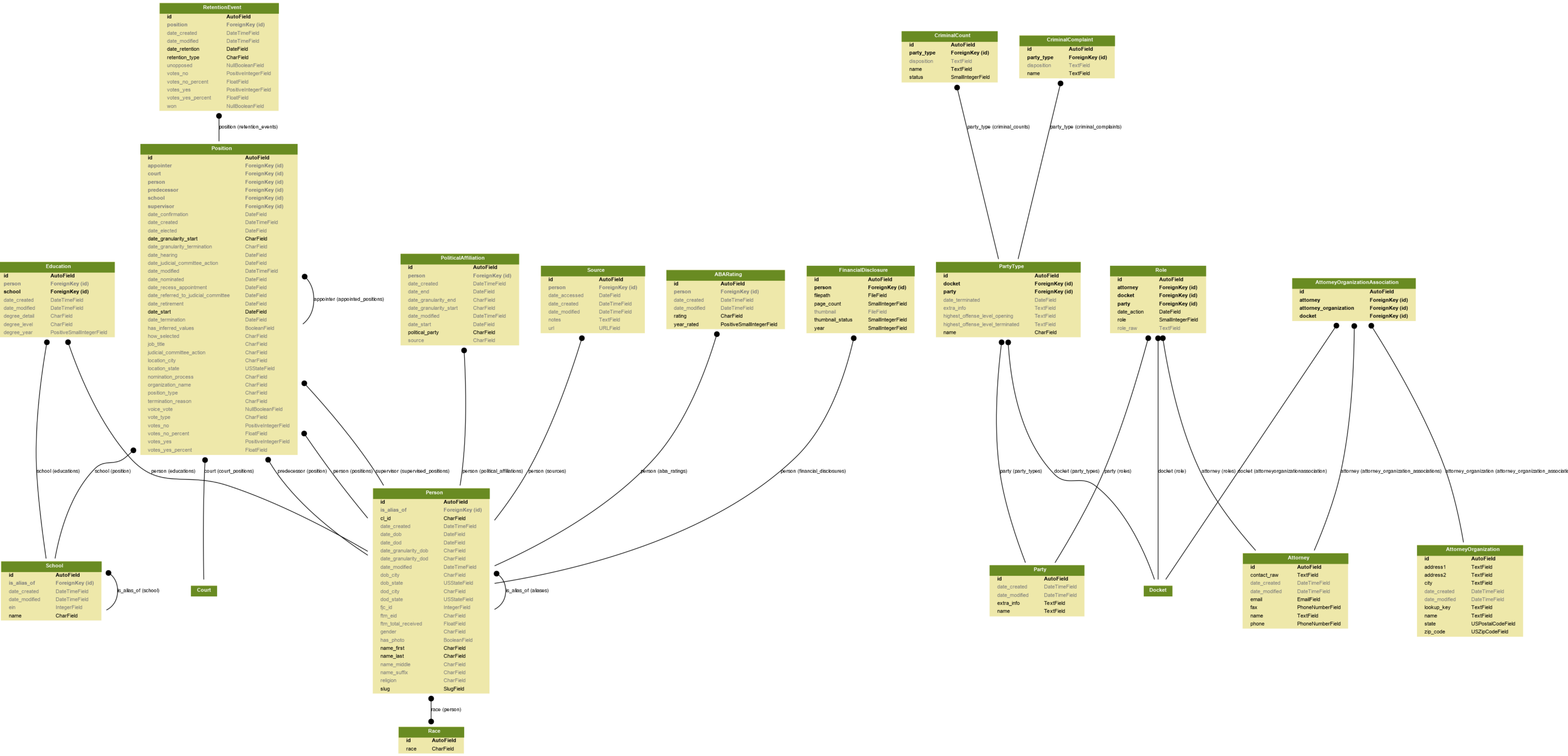
Race	
id	AutoField
race	CharField

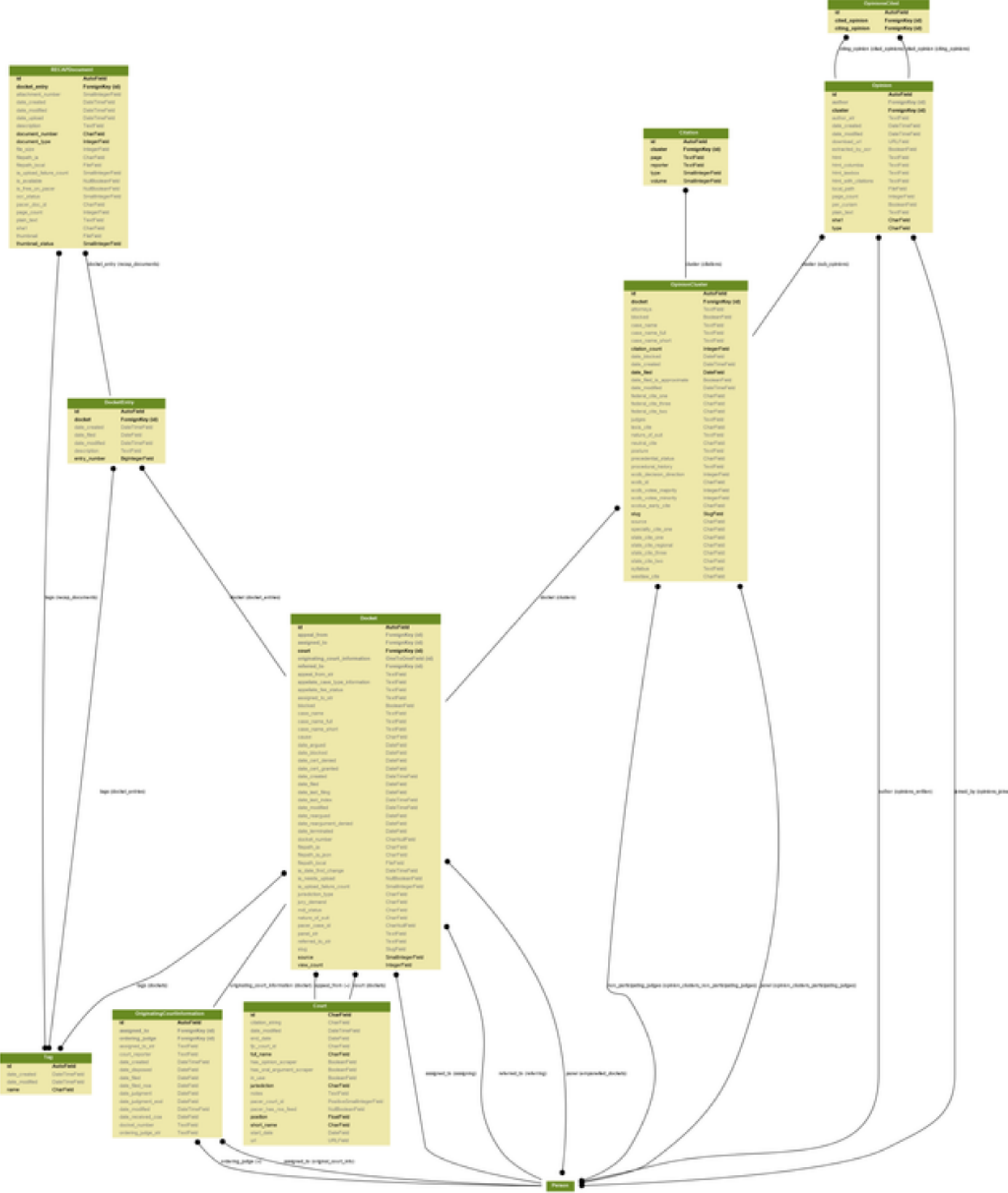
Party	
id	AutoField
date_created	DateTimeField
date_modified	DateTimeField
extra_info	TextField
name	TextField

Docket	
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Attorney	
id	AutoField
contact_raw	TextField
date_created	DateTimeField
date_modified	DateTimeField
email	EmailField
fax	PhoneNumberField
name	TextField
phone	PhoneNumberField

AttorneyOrganization	
id	AutoField
address1	TextField
address2	TextField
city	TextField
date_created	DateTimeField
date_modified	DateTimeField
lookup_key	TextField
name	TextField
state	USPostalCodeField
zip_code	USZipCodeField





Problems with Current Tools

- ❖ Relational database adoption trades richness of information for operability
 - ❖ What would be Nodes and Edges in a graph database are merely fields in a relational database w/ pre-defined tables
- ❖ Constraints in how a relational database handles relations is inconsistent with what happens in the field of Law
 - ❖ The field of Law requires more flexibility



Graph Databases

- ❖ NODES (VERTICIES):

- ❖ Opinions
- ❖ Courts
- ❖ Judges
- ❖ Statutes
- ❖ Topics
- ❖ Physical Locations (e.g., Texas)
- ❖ Other Legal Materials

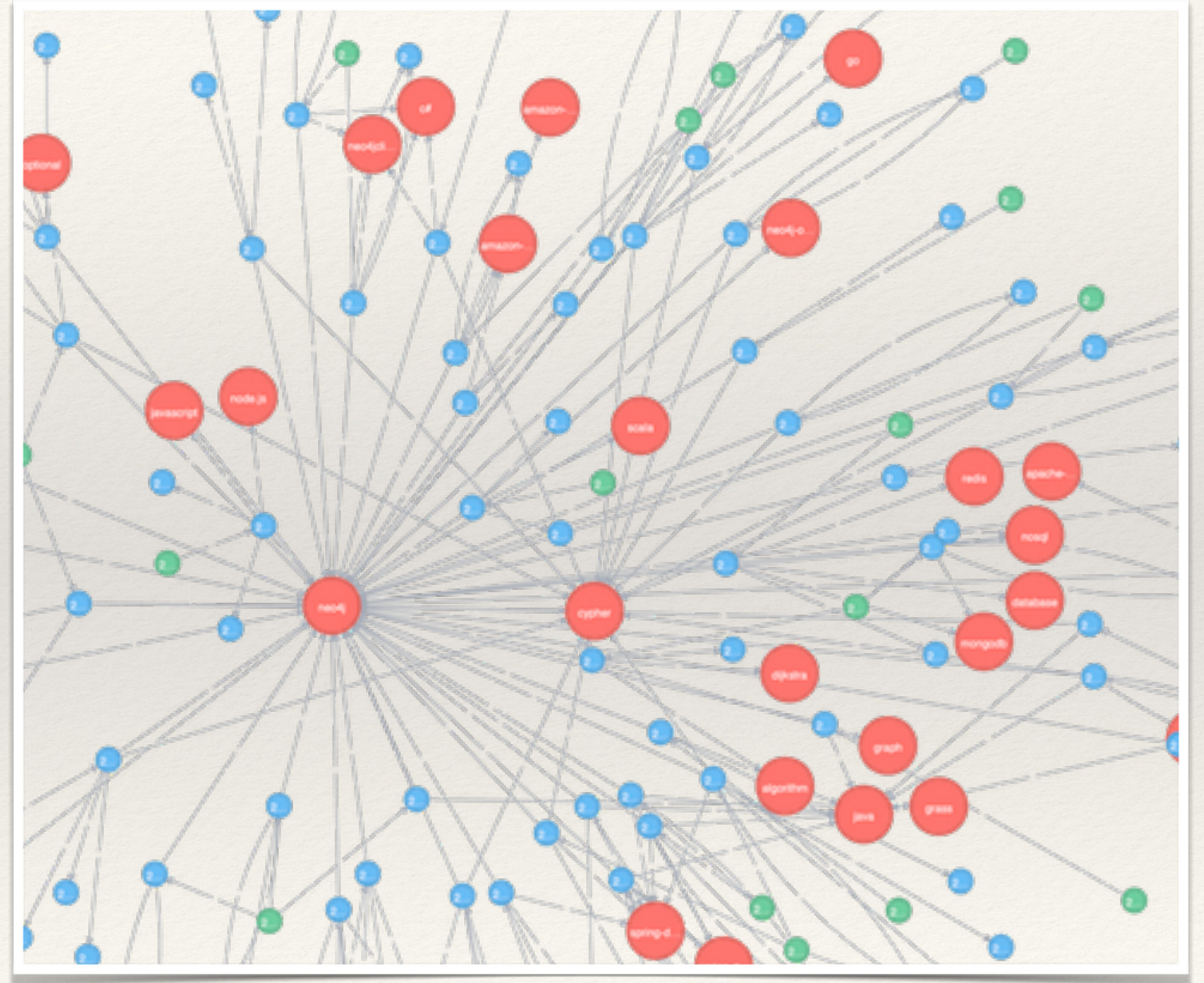
- ❖ EDGES:

- ❖ Precedents (Opinion to Opinion)
- ❖ Links from Topics to Opinions
- ❖ Links from Court to Opinion
- ❖ Links from Judge to Opinion
- ❖ Links from Jurisdiction to Opinion
- ❖ Links from Statute to Opinion
- ❖ Links from Topics to Other Legal Materials

In the field of Law,
the Edges have enormous meaning

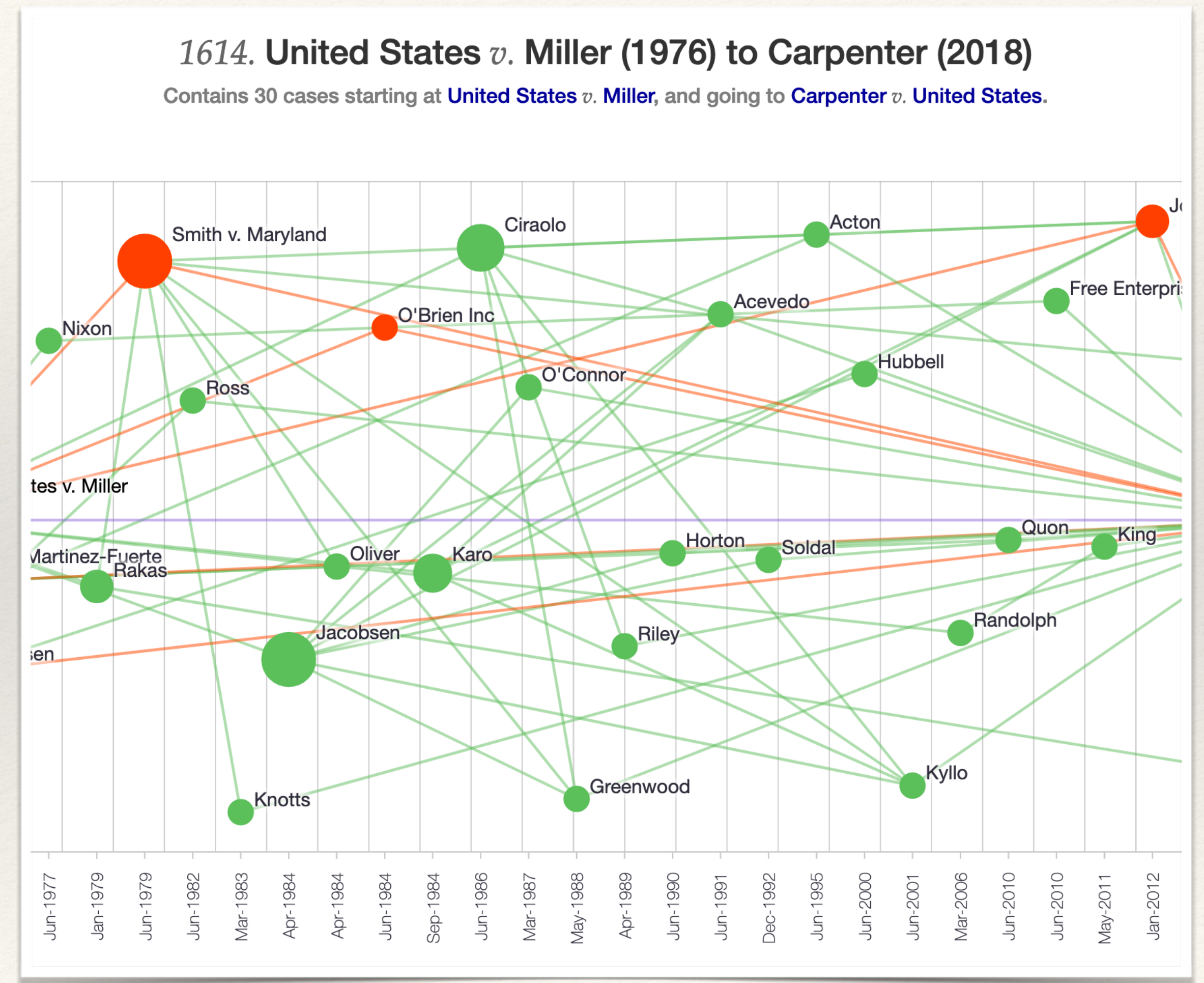
Where Graph Databases Would Excel

- ❖ Much easier to see the legal Topics that a Judge has handled (or at least written Opinions or Other Legal Materials)
- ❖ Much easier to gather Topics and Opinions from a Jurisdiction or set of Judges in a Jurisdiction
- ❖ Much easier to find the right line of cases for a particular question
- ❖ Facilitates inputting data into ML models



Where Graph Databases Would Excel (cont.)

- ❖ If the Edge can be more than a mere link, then it can contain the text that can make the link vastly more useful, e.g.:
 - ❖ *Carpenter v. United States*, 138 S. Ct. 2206 (2018) cited *Carroll v. United States*, 267 U.S. 132, 149
 - ❖ “The analysis regarding which expectations of privacy are entitled to protection is informed by historical understandings “of what was deemed an unreasonable search and seizure when [the Fourth Amendment] was adopted.”” *Carpenter v. United States*, 138 S. Ct. 2206 (2018) citing *Carroll v. United States*, 267 U.S. 132, 149.



No loss in adopting the graph database

(Because it can also do what relational databases can do)

Then what is holding lawyers back?

So what is holding lawyers back?

- ❖ Visualization
 - ❖ Interaction with the visualization tool
 - ❖ Bloom is a great example (lawyers can use that)
- ❖ Pushback from vendors
 - ❖ They are all invested in the relational database paradigm
- ❖ Half the Bar doesn't do visual
 - ❖ The rest have no conception of graphs

