

Relationship of Precedents Relied Upon in *MacPherson*

Could the manuf. foresee the product would cause harm?	Yes		<i>Thomas</i> (poison) <i>Devlin</i> (scaffolding) <i>MacPherson</i> (defective wheel) LIABILITY FOUND
	No	<i>Loop</i> (circular saw) LIABILITY NOT FOUND	<i>Losee</i> (steam boiler) LIABILITY NOT FOUND
		Yes	No
Could the buyer foresee the product would be dangerous?			

Figure P

In *Thomas v. Winchester*,¹⁵⁸ a pharmacist was liable to a customer for injuries caused by the pharmacist falsely labeling a poison.¹⁵⁹ In *Devlin v. Smith*,¹⁶⁰ a contractor was liable for injuries the contractor knew could have been caused by a negligently built scaffold.¹⁶¹ *Statler v. George A. Ray Mfg. Co.*¹⁶² held manufacturers could be liable for foreseeable injuries caused by defects in the production of coffee urns.¹⁶³

Cardozo distinguished the product liability cases involving inherently dangerous products from those where no liability was found because the plaintiffs were aware of or were given notice of

¹⁵⁸ *Thomas v. Winchester*, 6 N.Y. 397 (1852).

¹⁵⁹ *Id.* at 397.

¹⁶⁰ *Devlin v. Smith*, 89 N.Y. 470 (1882).

¹⁶¹ *Id.* at 470-73.

¹⁶² *Statler v. George A. Ray Mfg. Co.*, 195 N.Y. 478 (1909).

¹⁶³ *Id.* at 480-82 (overturning judgment on other grounds).

particular dangers.¹⁶⁴ No liability was found in *Lossee v. Clute*,¹⁶⁵ where the purchaser of the boiler bought the boiler after having tested it.¹⁶⁶ And in the case of a circular saw that malfunctioned, the manufacturer disclosed the defect to the buyer five years before it malfunctioned.¹⁶⁷

The product liability cases formed a cluster of cases involving manufacturers who harmed unsuspecting purchasers in a manner foreseeable by the providers of products or services. Based on the combination of the lack of foreseeability by the buyers and the foreseeability on the part of manufacturers, Cardozo inductively inferred a general rule that imposed liability under such circumstances.¹⁶⁸ Cardozo also explained that this generalization was supported by the analogy to similar duties imposed on landlords when harm is foreseeable.¹⁶⁹ Without images, he explained his reasoning using these cases in about ten pages. The reasoning in this case can also be understood with the aid of the matrix, or “case-space,”¹⁷⁰ shown in Figure P. Given the clarity of Cardozo’s writing, many readers could easily grasp the logic of Cardozo’s decision without a visual. On the other hand, others may appreciate the ability of a visual to help clarify its underlying logic, including a visual that provides all the similar cases cited in the decision in one glance. And by outlining information in this manner, judges can make such decisions easier, faster, and more objectively.

Having a matrix of cases supporting a certain outcome along with all the distinguishing factors could also be handy during oral argument. Such a matrix could be drawn in the case of *United*

¹⁶⁴ *MacPherson*, 217 N.Y. at 385-91.

¹⁶⁵ *Lossee v. Clute*, 51 N.Y. 494 (1873).

¹⁶⁶ *Id.* at 496.

¹⁶⁷ *Loop v. Litchfield*, 42 N.Y. 351, 357 (1870).

¹⁶⁸ *MacPherson*, 217 N.Y. at 390.

¹⁶⁹ *Id.* at 393-94 (courts impose a duty upon landlord to inspect and repair defects that may foreseeably cause harm to guests at a place of public entertainment).

¹⁷⁰ See, e.g., Dimitri Landa & Jeffrey R. Lax, *Disagreements on Collegial Courts: A Case-Space Approach*, 10 U. PA. J. CONST. L. 305, 319; 323 (2008) (describing how to use a matrix or case-space); see also Robert Ambrogi, *Vision Quest Visual Law Services Are Worth A Thousand Words-and Big Money*, ABA J., May 2014, at 34, 41 (describing business that uses visual techniques to convey legal research results). Economists have graphed similar relationships in torts cases in textbooks on Law and Economics. ROBERT COOTER & THOMAS ULEN, *LAWS & ECONOMICS* 187-229 (2012).

States v. Jimenez-Medina.¹⁷¹ In this case a border patrol agent's decision to stop Mr. Jimenez-Medina was based on six factors: 1) the type of vehicle driven, 2) the speed of the vehicle, 3) the driver's preoccupation with law enforcement, 4) the vehicle registration, 5) the reputation of the area of road for smuggling, and 6) the time of day.¹⁷² Mr. Jimenez-Medina was a Mexican resident driving a pickup truck he registered in Arizona in an area near the U.S. border known for alien smuggling.¹⁷³ Before stopping and arresting Mr. Jimenez-Medina, the border patrol agent saw the truck weave within its lane, leading the agent to believe Mr. Jimenez-Medina was preoccupied with the agent's presence.¹⁷⁴ The court held that this information was insufficient to justify stopping the driver based on a reasonable suspicion that an offense was being or had been committed.¹⁷⁵ To hold otherwise would cast suspicion on an entire category of people without any individualized suspicion of the particular person being stopped.¹⁷⁶ The various combinations of factors from similar cases the court in *Jimenez-Medina* considered are summarized below in Figure Q for easier review and deliberation:

¹⁷¹ United States v. Jimenez-Medina, 173 F.3d 752 (9th Cir. 1999).

¹⁷² *Id.* at 755.

¹⁷³ *Id.* at 753-54.

¹⁷⁴ *Id.* at 754.

¹⁷⁵ *Id.* at 756.

¹⁷⁶ *Id.* at 754.

Jimenez-Medina Cases (abbreviated)

Factors	JM ¹⁷⁷	HA ¹⁷⁸	R ¹⁷⁹	GC ¹⁸⁰	FM ¹⁸¹	RS ¹⁸²
Type of vehicle driven	X		X	X	X	X
Slow or fast speed	X	X				X
Driver's preoccupation ¹⁸³	X	X	X	X	X	X
Vehicle registration/residence	X	X				
Road's reputation for smuggling	X	X	X	X	X	X
Time of day	X					X
Swerving in lane of traffic			X			
Swerving over lanes						X
Heavily laden			X		X	
Smuggling pickup spot					X	
Rental car sticker					X	
Evasive driving						X
Reasonable Suspicion?	No	No	No	No	Yes	Yes

Figure Q

The court distinguished the innocuous factors involving Mr. Jimenez-Medina's circumstances from facts in cases shown above, in which courts found reasonable suspicion to justify arrests.¹⁸⁴ In *United States v. Franco-Munoz*,¹⁸⁵ a heavily-laden car was stopped in an area known for aliens smuggling.¹⁸⁶ And in *United States v. Rodriguez-Sanchez*,¹⁸⁷ the driver suddenly

¹⁷⁷ *Id.* at 753-56.

¹⁷⁸ *United States v. Hernandez-Alvarado*, 891 F.2d 1414, 1415 (9th Cir. 1989).

¹⁷⁹ *United States v. Rodriguez*, 976 F.2d 592, 593-94 (9th Cir. 1992).

¹⁸⁰ *United States v. Garcia-Camacho*, 53 F.3d 244, 245 (9th Cir. 1995).

¹⁸¹ *United States v. Franco-Munoz*, 952 F.2d 1055, 1057 (9th Cir. 1991).

¹⁸² *United States v. Rodriguez-Sanchez*, 23 F.3d 1488, 1490 (9th Cir. 1994).

¹⁸³ *United States v. Robert L.*, 874 F.2d 701 (9th Cir. 1989).

¹⁸⁴ *Jimenez-Medina*, 173 F.3d at 755-56.

¹⁸⁵ *Franco-Munoz*, 952 F.2d at 1055.

¹⁸⁶ *Id.* at 1056.

¹⁸⁷ 23 F.3d 1488 (9th Cir. 1994).

accelerated and wove in and out of traffic without signaling after the agent pulled up beside him.¹⁸⁸ The inferences of reasonable suspicion in *Franco-Munoz* and *Rodriguez-Sanchez* involved permissible generalizations particular to the circumstances, versus impermissible generalizations about Mexicans as a whole.

In broader logical terms, the legal reasoning in *Jimenez-Medina* involves careful and thorough analysis of cases applied to a new set of circumstances. In cognitive or psychological terms, Figure Q serves to visualize the information most relevant to conceptualizing the generalizations and analogies needed to effectively decide the case. In terms people use every day, the chart helps one to see the information needed for analysis and easy comparison. Or, in metaphorical terms, the chart is a visual metaphor that helps one see the conceptual forest through the trees of less important information. Finally, legal philosophers can describe the resulting decision as a realistic one based on the constitutional value of freedom from government intrusion and not one based on an illogical or hasty generalization.

More commonly, judges relate the parts of concepts to their whole or describe relationships of containment using terms such as a *fortiori*. For example, in *In re Nash's Estate*,¹⁸⁹ the court opined that since the legislature has the power to abolish a right of inheritance, a *fortiori*, it has the power to tax an inheritance.¹⁹⁰ What the judge meant is that the power to tax an inheritance is included within the power to abolish a right of inheritance. The rationality of such a conclusion may be expressed using formal logic, Latin, or by simply illustrating it as Figure R.

¹⁸⁸ *Id.* at 1490.

¹⁸⁹ *In re Nash's Estate*, 256 Cal. App. 2d 560 (1967).

¹⁹⁰ *Id.* at 562.

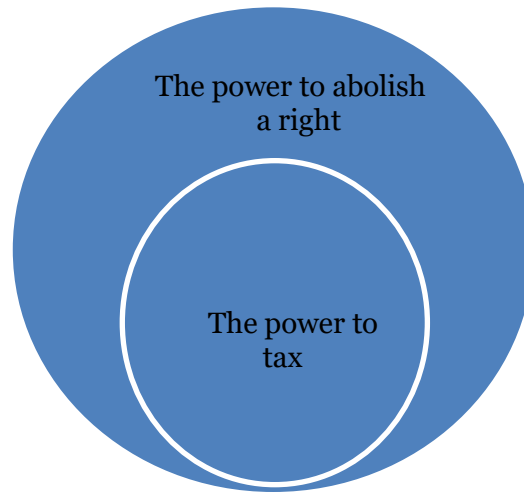


Figure R

Lastly, the challenge in many cases is simply to illustrate the facts or law guiding a particular conclusion. For example, during the confirmation hearing for United States Supreme Court Justice Neil Gorsuch, then-Judge Gorsuch declared that he reasonably applied the law in the case of *TransAm Trucking*.¹⁹¹ In that case, truck driver Alphonse Maddin transported cargo through Illinois when the brakes on his trailer froze in subzero temperatures.¹⁹² After reporting the problem to TransAm Trucking and waiting several hours for a repair truck, Maddin unhitched his truck from the trailer and drove away, leaving the trailer unattended.¹⁹³ His employer then terminated his employment for refusing to remain with the trailer in accordance with company policy.¹⁹⁴

The legal issue in the case was whether Transam Trucking violated section 31105 of the Department of Transportation regulations.¹⁹⁵ The set of rules the court found to apply are shown below, starting with the purpose in Section 31100 followed by the

¹⁹¹ Paul Callan, *Judge Gorsuch and the Frozen Truck Driver*, CNN (March 21, 2017, 5:27 PM ET), <https://www.cnn.com/2017/03/21/opinions/judge-gorsuch-the-frozen-truck-driver-opinion-callan/index.html> (referencing *Transam Trucking*, 833 F.3d at 1215).

¹⁹² *Transam Trucking*, 833 F.3d at 1208-09.

¹⁹³ *Id.* at 1209.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* at 1209 (referencing 49 U.S.C. § 31105 (2007)).

language of Section 31105. The latter section describes the circumstances in which an employer may not discharge or terminate an employee.¹⁹⁶

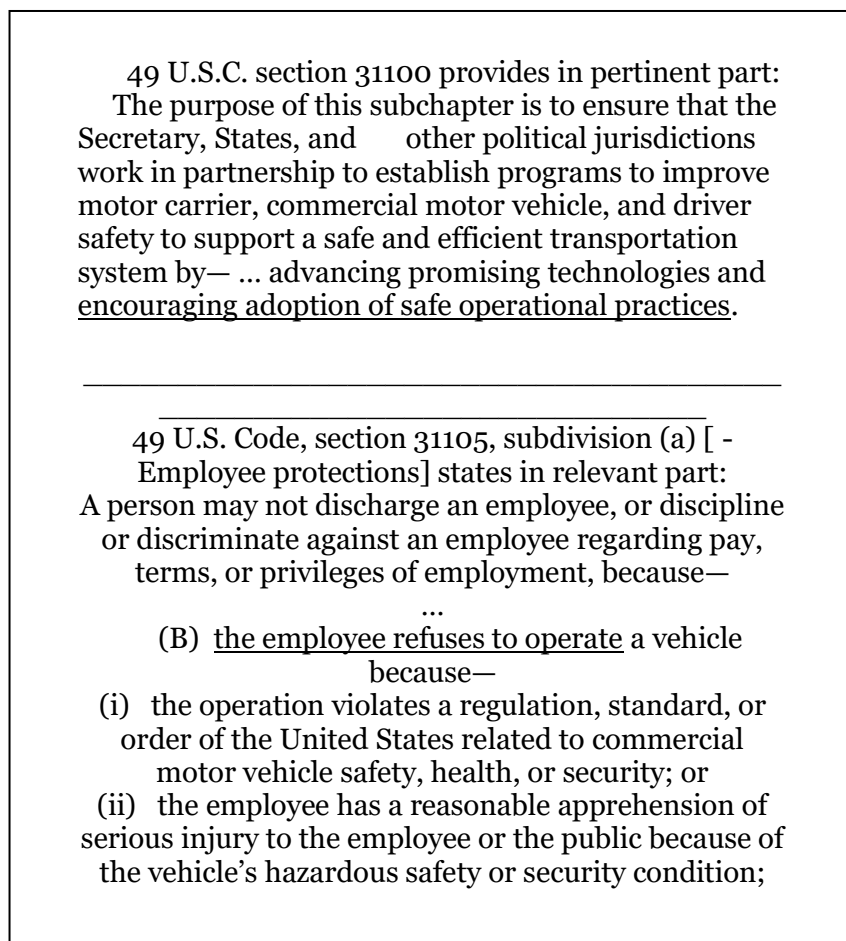


Figure S

The judges in the majority determined that the section describing when an employee may refuse to operate a vehicle was ambiguous in the context of the case and should be read in light of the purpose of these regulations because the regulation did not address the circumstances in which an employee refuses to stay in

¹⁹⁶ *Id.* at 1210-13.

a vehicle or “refuses to operate” one.¹⁹⁷ The majority looked to the purpose of “health” and “safety” to guide an interpretation of the regulation according to its plain meaning.¹⁹⁸

This is an interpretive process in which one can draw a diagram around the text being discussed to help envision its range of meaning or the circumstances the language was intended to include. In this case, the context included the choices the trucking company gave Mr. Maddin. He was specifically given the options of staying put or dragging the trailer down the highway with its brakes locked.¹⁹⁹ The majority determined that dragging the trailer down the highway invoked 49 U.S.C. §31105 (a)(1)(B)(ii).²⁰⁰ This section encompasses situations in which an employee “has a reasonable apprehension of serious injury.”²⁰¹ The majority also interpreted the term “operate” to include Mr. Maddin’s refusal to stay based on analogies to two other cases where employees refused to continue pulling an overweight trailer and refused to remain in a roadway.²⁰² The majority’s approach is one that may be considered metaphorically as filling gaps in the interstitial spaces of the law.²⁰³ A metaphorical gap in this case is the majority’s conclusion that a reasonable apprehension of serious injury includes the possibility of freezing in a truck. And the majority chose a conclusion that would encourage the adoption of safe operational practices.

In dissent, Judge Gorsuch stated that he “applied the law” by interpreting the entire law to only protect employees when they refuse to operate a vehicle, not when they choose to operate a vehicle and abandon the company’s trailer in violation of company policy.²⁰⁴ He ignored the fact that Maddin refused to drag the trailer down the highway. Gorsuch focused on the narrow circumstance included in the law regarding Maddin refusing to operate a vehicle. Moreover, Gorsuch ignored any consideration of the employee’s safety within the purpose of the regulation or within relevant sections of it.

In either the majority or dissenting opinions, the legal conclusions could have been less mysterious and better explained

¹⁹⁷ *Id.* at 1210-12.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 1209.

²⁰⁰ *Id.* at 1211.

²⁰¹ *Id.*

²⁰² *Id.* at 1211-12.

²⁰³ See CARDOZO, *supra* note 5, at 18-19, 70.

²⁰⁴ *Transam Trucking*, 833 F.3d at 1215-16.

by fully printing the applicable law to visualize the metaphorical gaps being filled or not filled. The difference between the majority and Gorsuch's dissent is that the majority considered the language of the employee protections within the broader context of the purpose, whereas Judge Gorsuch did not. Simply including the relevant language in such boxes allows readers to determine for themselves whether the dissent would have produced absurd results.

CONCLUSION

People who eschew the study of logic, math, and statistics undoubtedly are not familiar with methods of summarizing complex data and may be intimidated by representations of such evidence in visuals, such as a scatter plot diagrams. But logic in its broadest sense fundamentally underlies legal reasoning and is persuasive. Moreover, we are living in an era in which science and disputes regarding it are filling courtrooms,²⁰⁵ and the technical issues discussed in this article can be described visually. Consequently, it behooves jurists and legal scholars to sharpen their visual perception²⁰⁶ and use visuals when they can improve the communication of logical elements of legal reasoning.

The pictures worth a thousand legal words in legal writing are those that simply summarize complex facts, law, or combinations of both accompanied by text. Judges and lawyers can use visuals to form mental pictures in their minds needed to aid the process of inferring the applicable law, mapping what the law is, and envisioning the circumstances that are contemplated by it in ways that formal and informal logic described by text alone cannot. Lawyers can insert visuals in legal briefs and judges can incorporate electronic versions of them in their decisions or create their own images as instructed above.

Whether or not an image can be drawn that helps the reader, judges can use images during the drafting stage of decision-making to help judges avoid bias by helping them consider the facts and law separately before reaching a conclusion. Finally, using visuals to make decisions more transparent and readable

²⁰⁵ Reference Manual on Scientific Evidence, *supra* note 77, at 1-9.

²⁰⁶ AMY E. HERMAN, VISUAL INTELLIGENCE (2016).

may enhance the public's trust in them as just and reasonable²⁰⁷ because we may be better able to "know it when [we] see it."²⁰⁸

²⁰⁷ BREYER, *supra* note 36, at 115-135; CARTER & BURKE, *supra* note 42, at 33.

²⁰⁸ *Jacobellis*, 378 U.S. at 197 (Stewart, J., concurring) ("But I know it when I see it, and the motion picture involved in this case is not that.").