Law and Logic
Contemporary Issues

By
Dieter Krimphove
and
Gabriel M. Lentner

Duncker & Humblot · Berlin 2017
Using Propositional Deductive Logic as an Aid to Teaching American Contract Law: The Logocratic Approach

By Scott Brewer

I. The goal of this chapter:
To illustrate the use of logic in teaching the doctrinal course in Contracts at Harvard Law School

I seek in this chapter to describe and explain a method of teaching and analysis I have developed over several years of teaching the doctrinal course in Contracts at Harvard Law School. Central to that method is the use of tools from logic to help students gain an analytically rigorous, lawyerly mastery of the dynamics of legal rules and the use of those rules to construct legal arguments. In some years I have used the full apparatus of propositional calculus, with the truth-functional operators and propositional constants – as I do in the handout material presented below. In other years I have stuck more closely to natural language (‘and’, ‘not’, ‘or’, etc.). But the basic method is the same either way, and either way it relies significantly on the resources of logical analysis.

I have come to call this the Logocratic Method. I coined the term ‘logocratic’ to reflect the central concern of this method with assessing the strength [Greek κράτος – kratos] of premises that are claimed by their proponents to provide justification for a conclusion (such as the conclusion of a judge’s opinion or a lawyer’s brief) by means of argument [Greek λόγος – logos]. A vital foundation of the Logocratic Method as I teach it to my Contracts class is a set of tools from basic propositional logic. (Although first-order predicate logic would in some ways be superior,

---

1 I have described the method briefly as it applies to the analysis of one case I teach in my Contracts class in Brewer, Satisfaction and Posner’s Morin Opinion. I have also outlined the use of the method as applied to the analysis of arguments offered by lawyers and judges under the aegis of American Evidence law rules in Brewer, Logocratic method, and Weinstein/Abrams/Brewer/Medwed, Evidence, Chapters 1 and 2. These two chapters reflect a broader concern of the Logocratic Method since this contribution was originally drafted. The broader concern is with three types of strength (reconceived as virtues, that is, functional excellences, of arguments), which I label ‘internal’, ‘dialectical’, and ‘rhetorical’ virtues. The type of strength (virtue) at issue in the present chapter is, for the most part, only internal strength. See the cited chapters for further explanation.
it is significantly harder to teach even the basics of predicate logic to students who have no background in logic.)

Application of the Logocratic Method to assess the strength of the arguments in a judicial opinion requires the analyst (student, lawyer, judge, scholar) to answer seven questions regarding the arguments a judge proffers in a judicial opinion:

(i) How many distinct arguments are there?
(ii) What exactly are the premises and conclusions of each argument?
(iii) How do those arguments relate to one another? For example, does the conclusion of one argument provide the premise for another argument? Is there a “lemma” for a principal “theorem” in the judicial opinion?
(iv) What arguments are offered to resolve any unclarities in the applicable legal texts (unclarities such as semantic or syntactic ambiguity, or vagueness) that the judge encounters?
(v) According to a fair interpretive judgment, what logical form does each argument have (i.e., deductive, inductive, analogical, or inference to the best explanation)?
(vi) Given one’s interpretation of the logical form of a given argument, does it display the specific virtues that pertain to that logical form (such as either soundness or validity for a deductive argument)?
(vii) Does the overall set of arguments succeed in justifying the result?

As I have before described the overall jurisprudential motivation for the logocratic exercise, it is most clearly reflected in question (vii), namely: does the overall set of arguments succeed in justifying the result the judge reaches?

Although judicial decisions serve several distinct and overlapping social and political functions, one central function — perhaps a sine qua non in the American legal system— is to provide a justification for the use of state power of the sort that judges wield (in cooperation, to be sure, with other branches of government). That is, broadly speaking, the power to redistribute wealth in the civil setting and the power to redistribute wealth or liberty (or life) in the criminal setting. The overarching focus of this analytical method is to pursue the following inquiry: does this judge’s proffered justification for this particular use of state power actually succeed in doing its intended work? (See Brewer 2007, pp. 1124–25).

A major part of my presentation in this chapter is one of the teaching materials I use in the Contracts class. It’s in the form of a handout that is available to the students both in a hard copy and on-line at the course web site. (I am increasingly moving to PowerPoint for some of this material supplemented by handouts distrib-

---

2 See footnote 18 and accompanying text for a brief discussion of the concept of a “fair interpretive judgment.” For discussion of the four modes of inference, see Brewer, Exemplary Reasoning, pp. 942–949.
Throughout the semester I use handouts (and PowerPoint slides) that either teach or are guided by the Logocratic Method. I developed the particular handout presented below to help students get an overview of the complete logic of American Contract law. It presents a “master rule” for contractual liability. Armed, as it were, with this master rule and the basic logical techniques that underwrite it, a student should be able to consider any fact pattern — whether reported by a judge in an actual decided case, or presented by a client, or presented or alleged by an opposing counsel — and determine the plausibility of the claim that one party is, or is not, liable in contract to the other party.

Before I present the handout, which itself develops the “master rule for contractual obligation,” it will be helpful if I explain some of the basic concepts I use when teaching or using the Logocratic Method for legal analysis. These are concepts I have presented to the students during the semester, that is, before they have gotten to the material on the master rule presented below.

---

3 This may seem contrary to the strongly-voiced advice of Edward Tufte, an important theorist and teacher of methods of visual presentation. In an essay on “The Cognitive Style of PowerPoint,” Tufte asserts, for example, that “[s]erious problems require a serious tool: written reports. For nearly all engineering and scientific communication, instead of Power Point, the presentation and reporting software should be a word-processing program capable of capturing, editing, and publishing text, tables, data graphics, images, and scientific notation. Replacing PowerPoint with Microsoft Word (or, better, a tool with non-proprietary universal formats) will make presentations and their audiences smarter.” Tufte, 2006 (emphasis in the original). Tufte’s argument should be taken seriously, and I do and have done so. Although in this passage Tufte discusses the specific, narrow presentation area of “engineering and scientific communication,” not university classroom presentation, his point has valuable application beyond that domain. A key, in my view, is his reference to tools in the phrase ‘[s]erious problems require a serious tool’. An analogy suggests itself to me. Against Plato’s broad and sustained attacks on the epistemic and moral worth of the discipline of rhetoric (the study and practice of persuasion), Aristotle argues, analogically: “And if it is argued that great harm can be done by unjustly using such power of words, this objection applies to all good things except for virtue, and most of all to the most useful things, like strength, health, wealth, and military strategy; for by using these justly one would do the greatest good and unjustly, the greatest harm.” Aristotle, 1355b. Like strength, health, wealth, military strategy, and rhetoric (and argument!), PowerPoint is a tool, and as Tufte acknowledges, a tool we can use well or ill, skillfully or unskillfully, virtuously or invirtuously. In their complexity, my word-processed handouts have had a tendency to be perhaps too complex and overwhelming for pedagogical efficacy. For me, the very narrowness of the basic Power Point format, and in particular the limited space on its slides, is a pedagogically useful discipline, requiring me to focus crisply on what I’m trying teach, whether about Contracts, Evidence, the logic of legal argument, or jurisprudence. And when teaching Contracts students the dynamics of Contracts arguments, the ability PowerPoint affords me to have controlled, point-by-point lines of text helps my Socratic-maieutic task of getting the students to think for themselves about the identity, structure, and strengths of arguments that occur in enthymematic form (on my concept of enthymeme, see pages 103 and following).
II. Some background concepts for the Logocratic Method of explaining the logic of legal rules and legal arguments

1. Argument

From an epistemic point of view, an argument is a set of propositions (one or more), called ‘premises’, that is offered to provide inferential warrant for another set of propositions (one or more), called ‘conclusions’. To say that one proposition, label it ‘ε’ (this is a premise in the sense just defined), provides inferential warrant for another proposition, label it ‘h’ (this is a conclusion in the sense just defined), is to say that, according to the argument presented, the truth of ε would to some extent support the claim that h is true. For example, the two premises ε₁ and ε₂ may be offered to provide inferential warrant for the conclusion h in this argument:

ε₁ All employees hired for an indefinite period of time can be fired for any reason or no (good) reason.
ε₂ Olga Monge was hired for an indefinite period of time.

therefore

h Olga Monge can be fired for any reason or no (good) reason.

2. Logic and logical form

Logic is the study of the different modes of logical inference that different kinds of arguments display. An argument’s mode of logical inference (or, synonymously, its logical form) is the evidential relation between the argument’s premises and its conclusion(s). In accord with this conception of logic, we may say that an argument’s logical form is the evidential relation between the argument’s premises, εᵢ, and its conclusion(s), hᵢ.

3. The four modes of logical inference

In my view there are four “modes of logical inference” (or, synonymously, “logical forms”): deduction, induction, analogy, and inference to the best explanation.

---

4 I have presented these basic concepts in Brewer, Logocratic method. See also Weinstein/Abrams/Brewer/Medwed, Evidence, Chapters 1 and 2. I re-present them here because I also teach the concepts to the students and understanding my terms will help one understand the handout teaching tool I present later in this chapter.

5 Cf. Skyrms, p. 4 (“Logic is the study of the strength of the evidential link between the premises and conclusions of arguments.”).

6 This definition and concept of ‘logic’ call for a distinction between empirical and non-empirical evidentiary arguments. Under this definition of ‘logic’, every argument is “evidentiary” because in every argument premises are offered as providing some degree of evidentiary support for conclusions. For example, in a modus ponens argument ‘If ε then h’ and ε, therefore h’, premises ‘If ε then h’ and ‘ε’, taken together, provide evidential support for conclusion ‘h’ under this definition of ‘logic’, but it is not empirical evidential support – although a modus ponens can of course be used to establish empirical propositions.
These modes are distinguished from one another by the nature and structure of the support that obtains between the premises of the argument and its conclusion.

There is a disagreement among analysts about whether all arguments, including legal arguments, can fairly be represented by one or more of these four modes of logical inference, or indeed even whether all four of these modes exist irreducibly one to another. I believe that all arguments can indeed be fairly represented by one or more of these four modes of logical inference, and that all four of these modes exist irreducibly one to another (although, as I shall only briefly describe here, some modes are what I might call “intersective” – inference to the best explanation, and deduction or inductive specification – I define this term below – play a role within analogy, for example). Since these modes of logical inference – and the additional property of defeasibility, discussed below – are features of arguments in many different domains (law, empirical science, morality, etc.), it would be a mistake to refer to a special “logic of legal argument.”

We may summarize the four modes of logical inference as follows. (Please note that the following descriptions are intended as brief summaries only. I offer more detailed analysis of each mode elsewhere.)

a) **Deduction:** In a valid deductive argument, it is logically impossible that all the premises are true while the conclusion is false. That is, the truth of the premises of a valid deductive argument provides conclusive or incorrigible evidence for the truth of its conclusion. (‘Conclusive’ and ‘incorrigible’ and their counterpart terms ‘non-conclusive’ and ‘corrigible’ are, for our purposes, synonymous.)

b) **Induction:** In an inductive argument, the premises provide corrigible, non-conclusive probabilistic evidential warrant for the conclusion (with probability less than 1). There are two main forms: inductive generalization from observation of several individuals (for example: because I’ve seen 1, 2, 3, … n objects that were swans and that were white, I generalize that all/most/x% of swans are white), and inductive specification, the application of a previously made generalization to an individual, often used to make a prediction (for example: because all/most/x% of swans are white, the next swan I see is likely to be white). There are notorious, still unresolved problems in establishing the rational basis of induction, even though it is used constantly in empirical science and serves as the foundation for a good deal of the reasoning that judges, legislators, administrative agencies make about the worlds they adjudicate, legislate, and regulate.

c) **Inference to the best explanation** (“IBE”): Inference to the best explanation involves, as its name suggests, inference to an explanation of some fact or set of facts. In this argument, a statement of the phenomenon (or phenomena) to be explained and the putative explanation both appear as premises of the argument and the explanation itself is the argument’s conclusion. Although this mode of inference has been recognized by many philosophers, perhaps for centuries, it came into prominence in the modern period due to the work of the great American logician, philosopher, and mathematician Charles Sanders Peirce (1839–1914). (Peirce called it ‘abduction’, but both ‘abduction’ and ‘IBE’ refer
Many scholars who study IBE, including Peirce, believe that all instances of IBE instantiate the deductively fallacious argument “affirming the consequent.” Unlike these scholars, I believe that some IBE explanations can fairly be explained as resting on valid deductive inferences. Consider, for example, an IBE that explains how a pawn in chess can appear on the same column as a pawn on the same “team.” The explanation must be that one pawn of the team took an opposing piece in a diagonal column, the same column in which his teammate was perched. Here the premises in that IBE seem to provide conclusive, incorrigible evidence for the truth of their conclusions, which they would not do if they instantiated a deductively invalid argument. IBE is also prominent in both mathematics and logic, where, again, it is IBE that rests on a deductive foundation. Some other IBE arguments, such as many of those offered in empirical science (or in evidence law or indeed in everyday life) provide only corrigible, non-conclusive evidence (probabilistic warrant with probability less than 1). Consider, for example, the IBE’s that would explain the cause of an accident, or a pain in one’s foot, or the cause of an illness.

I regard inference to the best explanation to be the overarching logical form that guides lawyers, judges, students, in explaining the legal significance of a fact pattern (a dispute in contracts or torts, a criminal proceeding, etc.). I refer to this use of IBE as a special type of IBE (a logical species of the genus IBE), namely, “inference to the best legal explanation.” Other types include inference to the best logical explanation, inference to the best interpretive explanation, and inference to the best factual explanation. Inference to the best factual explanation usually plays a central role in informing an inference to the best legal explanation. For example, in order to explain whether a set of facts yields contractual obligation, a court will usually have to consider various forms of evidence, usually documentary or testimonial, to determine whether the best factual explanation of that documentary or testimonial evidence is that there was an agreement between the parties. I systematically use the concept of explanation from a legal point of view to characterize the arguments of competing litigants and competing judges. I also show the students that a fair formal representation of legal rules (which I call by the inelegant term ‘rulification’, see discussion below, pages 108 and following) offers a systematic method of inference to the best explanation, namely, determining whether the facts of an actual or hypothetical case seem to provide sufficient evidence for each element of either the antecedent of a legal rule, or the consequent, with the result that the assertion of the consequent (in modus ponens) or the negation of the antecedent (for modus tollens) seems warranted.

d) Analogy: In an analogical argument, one reasons that because two or more items share some characteristics, one can infer that they share an additional characteristic that is of particular interest to the reasoner. Within analogical inference IBE operates to discern the pattern relating the sharing of some characteristics and the inferred sharing of an additional characteristic that is of interest to the reasoner. In analogical inference examples are used as heuristics to convert examples into rules. For some analogical arguments the premises provide incorrigible
evidence for the truth of their conclusions, while in other analogical arguments, such as those used in empirical science, the premises provide only probabilistic evidential support.

4. Two properties of arguments: defeasibility and indefeasibility

Some arguments are defeasible and others are indefeasible. No argument is both defeasible and indefeasible. A defeasible argument from premises $\varepsilon_1$-$\varepsilon_n$ to conclusion $h$ is one in which it is possible that the addition of some premise(s), $\varepsilon_{n+1}$, to $\varepsilon_1$-$\varepsilon_n$, can undermine the degree of evidential warrant premises that $\varepsilon_1$-$\varepsilon_n$ provide for $h$.

5. The enthymeme

The procedures developed in the Logocratic Method for analyzing the logic of legal argument is are designed to handle a familiar problem in the evaluation of legal rules and legal arguments that occur in the natural language of judicial decisions, statutes, regulations, constitutions, and lawyers’ briefs: they are very often enthymematic. An enthymeme is any rule or argument (deductive, inductive, IBE, or analogical) whose logical form is not explicitly clear from its original mode of presentation (presentation, for example, in a judicial opinion or a lawyer’s brief). We might also use ‘non-formal’ as a synonym for ‘enthymematic’, and use ‘non-formal’ to mean precisely that the logical structure of the rule or argument is not explicit or clear from its original mode of presentation. This additional usage allows us to mark the fact that in another sense, legal rules and arguments are highly “formal,” and their language is not “natural,” in the sense of “plain” or “everyday.”

We identify two types of enthymeme, the rule-enthymeme and the argument-enthymeme.

a) Rule-enthymeme

Here is an example of a rule-enthymeme:

(R) Any person who knowingly transports stolen property over state lines is guilty of a felony.

Is R equivalent to R$_1$ or to R$_2$?

R$_1$ Any person who transports over state lines property that he knows is stolen is guilty of a felony.

R$_2$ Any person who knows that he is transporting over state lines property that is stolen is guilty of a felony.

Note that under R$_2$ a person can be guilty of the felony even if he doesn’t know that the property is stolen, whereas under R$_1$ he is not guilty unless he knows that it’s stolen (indeed, under R$_1$ he need not even know that the stolen property has
been taken over state lines). This is a particularly obvious example of a rule-enthymeme because R itself is ambiguous.7

But the phenomenon of rule-enthymemicity is far more pervasive than rule-ambiguity. Consider this statement by the court in *Monge v. Beebe Rubber Co.*,8 in which the Supreme Court of New Hampshire changed New Hampshire’s very long-established precedent rule for “employment at will” contracts. We may represent that precedent rule as follows:

\[(R) \quad \text{Every employment contract that specifies no duration is terminable by either party for any reason or no (good) reason.}\]

In *Monge*, plaintiff Monge was a female employee in the defendant’s factory under a contract that specified no duration. When she was fired, she claimed, in an action for breach of contract against the company, that she was fired because she refused to date the factory foreman. If the *Monge* court had applied the precedent rule, it should have reasoned as follows, using the deductive inference *modus ponens* to conclude that the defendant company could terminate Olga Monge for any reason or no (good) reason, even if she was fired as an act of (what today would be characterized as) sexual harassment:

\[
\varepsilon_1: \quad \text{Every employment contract that specifies no duration is terminable by either party for any reason or no (good) reason.} \\
\varepsilon_2: \quad \text{Olga Monge was hired under a contract that specifies no duration.}
\]

Therefore,

\[h: \quad \text{The employment contract is terminable by the Beebe Rubber Company for any reason or no (good) reason.}\]

The *Monge* court did not, however, reason in this way. Instead, it very substantially revised rule R for R’. R’ is *Monge’s rule-enthymeme*.

\[(R’) \quad \text{“We hold that a termination by the employer of a contract of employment at will which is motivated by bad faith or malice or based on retaliation is not in the best interest of the economic system or the public good and constitutes a breach of the employment contract.”}\]

This is a rule-enthymeme because in the form in which it literally appears in the opinion, the exact logical elements and logical structure of the rule are not explicit. Let us introduce a term that identifies the process of attempting to offer a fair formal representation of a rule-enthymeme: “rulification.”

---

7 The ambiguity concerns what philosophers of language refer to as “opaque contexts” in which propositions occur, such as “knows that,” “believes that,” “is necessary that” and many others that occur in law. For good discussion see Rodes, Jr./Pospesel, chapter 6, “Intensional Contexts.”

8 316 A.2d 549 (N.H. 1974).
Here is one effort to rulify the Monge rule-enthymeme, using the basic grammar of propositional deductive logic, and using what I have fashioned, and refer to, as the “indent-right” method of representation (presented in detail below):

**IF**

there is a termination by the employer of a contract of employment at will that is motivated by bad faith

**OR**

there is a termination by the employer of a contract of employment at will that is motivated by malice

**OR**

there is a termination by the employer of a contract of employment at will based on retaliation

**THEN**

the termination is not in the best interest of the economic system or the public good and constitutes a breach of the employment contract

**AND**

there is a breach of the employment contract.

Even the shift from the court’s ‘We hold that’ to ‘if’ … ‘then’ is a move from the enthymematic form of the rule to a form whose logical form is clear. ‘We hold that’ seems grammatically to be an assertion, but it is not explicitly a *conditional*, which is the logical form of rules. We interpret the court to be declaring a rule, knowing what we know about the context of the statement and what courts do.

This method of giving a fair formal representation of the Monge court’s rule-enthymeme facilitates *inference to the best legal explanation*. In this representational structure, I basically adhere to the grammar of propositional deductive logic, but do not use the full propositional grammar of assignments of propositional constants to propositions in the rule, nor do I use the logical constants. (I discuss the advantages of this type of representation in below, see pages 106 and following.)

A few more terms are helpful here to understand rule-enthymemicity: the *logical form* of a rule consists of two components:

(i) the *logical elements* of the rule (represented as ‘B’, ‘M’, ‘R’, and ‘E’, and possibly ‘I’ – more on this point in a moment), and

(ii) the *logical structure* of the rule (represented by the logical operators ‘If … then’ and ‘or’ above). The logical structure of this rulified rule is three disjointly sufficient conditions, namely the propositions that are indented to the right of ‘If’ in the representation above (these are labelled ‘B’, ‘M’, and ‘R’ in a representation using the full propositional grammar, presented below, see page 108), for either two jointly necessary conditions (the two propositions indented under ‘then’ in the representation above, and as ‘I’ and ‘E’ in the representation on page 108 below).9

9 See note 17 below.
We have just noticed that the grammatical form of the court’s statement in *Monge* does not even make it explicitly clear that it is offering a rule. We need our knowledge of the context of the utterance to interpret the enthymematic natural language statement by the court into its logical form of a rule.

There is another aspect of the rule as the *Monge* court stated it that makes the rule enthymematic. When we rulify, should we (as we have done above) treat I (“… is not in the best interest of the economic system or the public good …”) in the rule-enthymeme as part of the *rule* the court endorses? Or might that part of the enthymeme *not* be regarded as a rule-element and instead as a statement of the court’s *rationale* for the rule it adopts? I think the latter is the better reading that I is not a rule element. One reason for that interpretive judgment is that the court elsewhere uses a very similar rationale to the statement in I to justify this very significant change in law. (Another reason, though this is in a way cheating, is that the Supreme Court of New Hampshire made clear in a later opinion that it did not treat I as a rule element. One could debate this interpretation, but it’s clear that this is indeed a rule-enthymeme requiring the interpreter of *Monge* to make interpretive decisions about what a fair formal representation of the *Monge* rule is. This unclarity is potentially problematic, since it’s arguable that a subsequent decision by the same court, the *Howard* case (also the Supreme Court of New Hampshire but with membership different from the composition of the *Monge* court) exploited this unclarity substantially to narrow the *Monge* rule.

Although it is unusual in the literature to find enthymemicity attributed to rules, there seems to be no good reason *not* to do so, for the reasons and with the illustrations just offered. Much more common in the literature is to find the property of enthymemicity attributed to arguments, and enthymemicity is indeed an important property of many arguments, and many legal arguments.  

\[ b) \text{ A note on the indent/right method of representing legal rules in the grammar of propositional logic} \]

We can make use of a concept that logician Bangs Tapscott refers to as “domination” among truth-functional operators. Here are the basics of Tapscott’s explanation:

„When an operator attaches to a statement or a pair of statements to form a compound, the statement or statements to which the operator attaches are the components of the compound. However, for the sake of brevity, it is sometimes convenient to refer to them as components to the operator which generates the compound. Speaking in this loose fashion, we might say that in the statement

---


12 For discussion of the evolution of logicians’ use of the term ‘enthymeme’ as a property of arguments, see *Brewer, Exemplary Reasoning*, p. 984 ff.

13 See *Tapscott*, pp. 35–36 (§ 3.4 Dominance and Subordination among Operators).
1. \(~(A \lor B) \land C\)
the components to the dot\[14\] are the statements ‘\(~(A \lor B)\)’ and ‘C’, while the components
to the wedge are the statements ‘A’ and ‘B’, and the component to the tilde is the state-
ment ‘(A \lor B)’.

One operator dominates another if the other occurs in a component to the one. Thus in
(1), the tilde dominates the wedge and the dot dominates the tilde (and also the wedge).
If one operator dominates another, the second is said to be subordinate to the first. In
(1), the tilde is subordinate to the dot, and the wedge is subordinate to the tilde (and also
to the dot).

An operator is the dominant operator in a formula if it dominates all other operators in
the formula. In (1), the dominant operator is the dot. But in the first conjunct of (1) the
dominant operator is the tilde.

Clearly, there are different levels of domination—a “pecking order” among the operators
in compound statements. One operator directly dominates another if the second is the
dominant operator in a component to the first. If one operator directly dominates anoth-
er, the second is directly subordinate to the first. Thus in (1), the dot directly dominates
the tilde. The dot does not directly dominate the wedge, since the wedge is not the dom-
inant operator in either of the components of (1)…

If one operator dominates another, but does not directly dominate it, it is then a case of
indirect domination. In (1), the dot indirectly dominates the wedge.\[15\]

We use Tapscott’s discussion of dominance among logical operators, within the
framework of propositional deductive logic, to create what we will call the “in-
dent-right” method of representing rule enthymemes.

The key thing to understand about this method of representing rule enthymemes
is that we fully represent the logical structure of a rule enthymeme, but without
using the symbols for truth-functional operators (‘\(~\)’, ‘\(\land\)’, ‘\(\lor\)’, ‘\(\rightarrow\)’, ‘\(\equiv\)’)
and while using natural language, rather than substituting abbreviations for prop-
ositions.

The rules for using the indent-right method of rulification are straightforward:

(i) The dominant operator stands furthest to the left.

(ii) Any operator that the dominant operator dominates is indented once to the
right (hence, “indent-right” method)

(iii) More generally, any operator that dominates another operator stands to the
left-indent of that operator.

I’ve already presented an example of the indent-right method from the Monge
case. Recall the rule-enthymeme that the court offers as its principal holding is:

---

\[14\] Tapscott uses ‘*’ to represent the conjunctive operator. Other logicians use either ‘&’
or ‘\(\land\)’. And Tapscott uses ‘\(~\)’ for the negational operator, while other logicians use ‘\(\sim\)’. This
is a difference in symbolism only. All of the truth-functional operators have the meaning
precisely represented by their corresponding truth-tables, and the symbol one uses for the
operator does not matter as long as one is consistent.

\[15\] Tapscott, pp. 35–36.
We hold that a termination by the employer of a contract of employment at will which is motivated by bad faith or malice or based on retaliation is not in the best interest of the economic system or the public good and constitutes a breach of the employment contract.

We may assign propositional constants to elements of this rule to rulify the rule-enthymeme in the standard grammar of propositional logic, as follows. Give these assignments to the propositional variables that are propositional elements of this rule-enthymeme. It can be helpful to pick the abbreviatory letter in a way that helps you to recall what proposition in the rule enthymeme you’re using the letter to represent.

B: there is a termination by the employer of a contract of employment at will that is motivated by bad faith
M: there is a termination by the employer of a contract of employment at will that is motivated by malice
R: there is a termination by the employer of a contract of employment at will based on retaliation
I: the termination is not in the best interest of the economic system or the public good and constitutes a breach of the employment contract.
E there is a breach of the employment contract

With these assignments, and with standard logical constants for material implication, inclusive disjunction, and conjunction, the Monge rule-enthymeme rulified is:

Representation 1: \((B \lor M \lor R) \supset (I \land E)\)

As I’ve done above, using the indent-right method, both sticking to the natural language of the rule-enthymeme instead of replacing it with propositional constants, and also using natural language to state the truth-functional connectives – ‘and’ ‘if … then’,” ‘or’, we represent the rule enthymeme as follows:

Representation 2:

IF

there is a termination by the employer of a contract of employment at will that is motivated by bad faith

OR

there is a termination by the employer of a contract of employment at will that is motivated by malice

OR

there is a termination by the employer of a contract of employment at will based on retaliation

---

16 For reasons beyond the scope of my discussion in this chapter, I believe that element I should not be included in the best representation of the Monge rule. However, if we represent the rule-enthymeme literally, we should include it, as I have done in the text above.
The Logocratic Approach

THEN

the termination is not in the best interest of the economic system or the public good and constitutes a breach of the employment contract

AND

there is a breach of the employment contract.

Note that, in Tapscott’s terminology, the truth-functional operator “if … then” dominates the truth-functional operator “or” (which we are assuming is inclusive or – in the context, this is clearly a good interpretation), and so it stands farthest to the left while the “or” operators are indented right.

My experience of using rulification within the grammar or propositional logic, to teach legal rules and arguments in courses like Contracts and Evidence is shaped by the fact that most of my students in these classes have not been trained in symbolic logic (and many of them are what I might call logophobic, made anxious by overt references to logico-symbolic methods of representing legal rules). An American law professor faces a particular challenge in teaching logic as a basic tool of legal analysis in an American law school. That challenge is the continuing and, in my view, baneful and substantial, influence of Oliver Wendell Holmes, Jr.’s assertion (and its many offspring) that “the life of the law has not been logic: it has been experience.”17 In my view, this declaration makes its way into American law-professor and law-student legal culture in such a way that logic is not taken seriously as a discipline for teaching and learning substantive and procedural doctrines of law. Some of the material in the handout below attempts to overcome the intellectual harm that this culture has caused.18 The indent-right method allows me to use (and teach) the basic grammar of propositional logic without exciting the logophobia of students that I would arouse were I systematically to use the “full monty” of symbolic propositional grammar, as in representation 1, above. It also allows me to give the students the basic Logocratic-Methodical tool for executing an inference to the best legal explanation. That tool is to rulify the rule-enthymeme, using, if possible (and sufficiently concise) the indent-right method of rulification, and then

17 The fuller quotation is this:

The object of this book is to present a general view of the Common Law. To accomplish that task, other tools are needed besides logic. It is something to show that the consistency of a system requires a particular result, but it is not all. The life of the law has not been logic: it has been experience. The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellow men, have had a good deal more to do than the syllogism in determining the rules by which men should be governed. The law embodies the story of a nation’s development through many centuries, and it cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics. Holmes, Jr., p. 1.

18 See for example the discussion in the section at the end of this chapter, “Special note on the use of formal logical tools,” p. 120. I’ve argued for my own chiasmic correction of Holmes, Jr.’s assertion, see Brewer, Traversing Holmes’ Path (“The life of the law is, and should be, logic suffused by experience and experience tempered by logic.”).
seeing whether, on the facts of the case or hypothetical, there was in the actual case, or likely would be in the hypothetical case, sufficient evidence for each element of the antecedent (for use of modus ponens) or consequent (for use of modus tollens).

However, I should also note that some legal rule-enthymemes are sufficiently long and complex that using the indent-right method would itself be very cumbersome and take up a good deal of space on the page (or computer screen). In some years I have in fact taught the full symbolic form of rules in propositional grammar, and indeed the handout material that I present below uses this more concise tool of representation as well.

6. Argument-enthymeme

Here is an example of an argument-enthymeme. Suppose a judge writes in an opinion resolving a contracts dispute:

“The plaintiff was an employee-at-will, so she could be fired for any reason or no reason at all.” (Compare the Monge case, discussed above.)

This might be represented as a premise $\varepsilon_1$ that provides inferential warrant for conclusion $h$:

$\varepsilon_1$: The plaintiff was an employee-at-will.

Therefore,

$h$: The plaintiff could be fired for any reason or no reason at all.

Is that a valid deductive argument? By definition, a valid deductive argument is an argument in which, whenever all the premises are true, the conclusion must be true. Taken as literally quoted, the argument seems not to be valid. By its literal terms the argument provides no reason to believe that every employee that is an at-will employee can be fired for any reason or no reason at all. Without more, it is conceivable that some types of employee-at-will can be fired only for cause.

But perhaps we conclude that the argument, properly interpreted, is not deductively invalid. Perhaps we think of ourselves as interpreters of the judge’s argument who seek to give a fair formal representation of this argument that is presented in the non-formal setting of a judicial opinion. Perhaps we believe that the judge was using a shortcut and didn’t feel the need to state explicitly that he was assuming – and assuming that his interpreters would know that he was assuming – that all employees-at-will can be fired for any reason or no reason at all. If we believe that the judge offering this argument from $\varepsilon_1$ to $h$ was relying on the unstated but assumed premise, ‘All employees-at-will can be fired for any reason or no reason at all’, then we would conclude that the best way to interpret the judge’s argument is as follows:

$\varepsilon_0$: All employees-at-will can be fired for any reason or no reason at all.

$\varepsilon_1$: The plaintiff was an employee-at-will.

Therefore,

$h$: The plaintiff could be fired for any reason or no reason at all.
– which is a valid deductive argument (another instance of modus ponens). In this example of how we might interpret the judge’s argument, we conclude that the true logical form of the argument (that premises \(e_0\) and \(e_1\) provide inferential warrant for \(h\)) was not explicitly clear from the way in which it was originally presented; at first glance it seemed like the argument was that \(e_1\) by itself provided the inferential warrant for \(h\). But, on second glance, we might judge that the argument is an enthymeme, an argument, as defined above, whose logical form is not explicitly clear from its original mode of presentation but whose proper logical form is discernible by a fair formal representation.

Note that we must give some attention to the circumstances under which we think we, as interpreters of arguments, are warranted in treating them as enthymemes. After all, if we add the right premise, every argument could be interpreted as a valid deductive argument. But surely we don’t believe that every argument is a valid deductive argument, or, indeed, is a deductive argument at all – some are inductive, some analogical, some abductive.

Here is another example that calls attention to the need to be careful when interpreting enthymemes and attempting to give a fair representation of them in explicit logical form. Philosophers have long offered this argument as the paradigm of a valid deductive inference.

\[
\begin{align*}
\epsilon_1 & \quad \text{All men are mortal.} \\
\epsilon_2 & \quad \text{Socrates is a man.} \\
\h & \quad \text{Therefore, Socrates is mortal.}
\end{align*}
\]

This does indeed seem to be a valid deductive inference, for it does seem that in any possible world in which \(\epsilon_1\) and \(\epsilon_2\) are true \(h\) must also be true. But consider what kind of justification there could be for the first premise, ‘All men are mortal.’ Surely it rests on an inductive generalization (highly confirmed, to be sure). Might one not fairly represent the “Socrates syllogism” not as a deductively valid inference but as an inductive specification, that is, an application of an inductive generalization to an individual, where the major premise is not assumed or known to be a true universal generalization, which inductive generalizations are incapable of producing? What criteria should we use? As analysts of the logic of legal argument we try to be sensitive to such questions.

---

19 Etymologically, the proper transliteration of the Greek plural for ‘enthymeme’ (ἐνθυμηματα) is ‘enthymemata’ (ἐνθυμηματα). But since that is unwieldy to pronounce, a common convention is now to make ‘enthymemes’ the plural of ‘enthymeme’. The adjectival form is ‘enthymematic’, which is still a mouthful but we will stick with it.

20 It is beyond the scope of this chapter to explore that question. My view, developed elsewhere, is that in order to satisfy the criterion of offering a fair formal representation of an argument-enthymeme (or a rule-enthymeme), we must be guided by interpretive criteria, such as the author’s intent, literal meaning, and principle of charity. How these criteria
The balance of this chapter is a handout I give to my Contracts students (both in a hard copy and online). It develops a master rule that a person (lawyer, judge, or law student) can use to assess contractual liability in any jurisdiction, state or federal, of American contract law. Although specific contract rules differ from one state jurisdiction to another and between state and federal jurisdictions, they share a deep logical structure, and that is the structure I reveal to the students gradually, over the course of the semester. I believe that, with a few adjustments, this method could be used to assess contractual liability under any legal system, including those in civil-law jurisdictions of Europe and elsewhere in the world.

III. A brief word on how the Logocratic concepts just described are related to the “master rule” of Contracts handout presented below

In terms of the Logocratic concepts just explained, this master rule helps the student (or other legal analyst) consider a particular fact pattern and, with the guidance of the rule, reason her way to the best legal explanation of that fact pattern: that there is contractual liability or there is not. (An iterated application of the method would help determine what the damages would be if there is contractual liability and breach.)

Many Contract law rules that are only abstractly referred to in the handout, such as the rules for offer, acceptance, and consideration, are rule-enthymemes that need to be interpreted. And there will most often be cases applying those rules, offering argument enthymemes that must be “unpacked” by the student in order to know how a given jurisdiction understands a rule. And those arguments will have one or more of the four modes of logical inference, deduction, induction (usually inductive specification), analogy, and IBE (such as inference to the best factual explanation, while, as noted, the overall task of the Logocratic analyst is to give the best legal explanation of the fact pattern: contractual liability or not).

The material presented in the handout typically comes toward the end of the semester, as a summing up of the method we have, by that time, been using to analyze cases and rules throughout the semester.
IV. Handout given to students in the Contracts course at Harvard Law School, used to teach the overall logical structure of American contract law

Inference to the best legal explanation for potential contracts disputes: discerning the “master rule” for contractual liability in American contract law

Professor Scott Brewer
Contracts
Harvard Law School

1. Introduction: purpose of this handout

Taken together, two rules and one observation – all of which we discussed early in the semester – guide us in constructing a master rule for American contract law. This is an abstract rule that determines how the specific rules of contract law are coordinated in a case that you are analyzing to indicate whether, according to your inference to the best legal explanation of the facts of a dispute, there is contractual obligation. In this handout I do the following:

(i) Remind you of the rules and the observation that can help us construct the master rule.
(ii) Explain the master rule and its three elements.
(iii) Explain how an understanding of this master rule can help us to construct a flow chart of analysis that can guide your inference to the best legal explanation whenever you encounter a fact pattern that might be best explained as the making of a contract between or among two or more parties.
(iv) Repeat an observation I have made several times in class about the specific and limited role of logical analysis in analyzing fact patterns that might be explained as yielding contractual obligation. The remark about the specific and limited role of formal logical analysis of problems pertains not only to our work in this course (including on the exam), but also more generally to your lives as 2Ls, 3Ls, and lawyers.

2. Discerning the “master rule” for contractual liability in American contract law: the concepts of “prima facie contractual obligation” and “defeater doctrines”

a) Glossary

O: There is an offer.
A: There is an acceptance.
C: There is consideration.
F: There is *prima facie* contractual obligation [i.e., the basic requirements of formation have been satisfied].

T: The sufficient conditions for some “defeater doctrine” rule are true.

K: There is contractual obligation, all things considered [i.e., there is an enforceable promise, see Restatement 2nd § 1].

P: There is a promise.

R: There is a promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person.

D: There is a promise which does induce such action or forbearance on the part of the promisee or a third person.

I: Injustice can be avoided only by enforcement of the promise.

The two rules that guide us in constructing the master rule for American contract law appear in § 1 and § 90(1) of the *Restatement (Second) of Contracts*. The observation that also guides us in this task appears in Justice Loevinger’s opinion in *Baehr v. Penn-O-Tex*.

b) *Restatement 2nd of Contracts – Chapter 1. § 1 Meaning Of Terms*

A contract is a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty.

c) *Chapter 4. Formation Of Contracts–Consideration; Topic 2. Contracts Without Consideration § 90. Promise Reasonably Inducing Action Or Forbearance*

(1) A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise. The remedy granted for breach may be limited as justice requires.

3. *Baehr v. Penn-O-Tex*

“Unfortunately, contract, like most of the basic terms constituting the intellectual tools of law, is conventionally defined in a circular fashion. By the most common definition, a contract is a promise or set of promises for the breach of which the law gives a remedy or the performance of which the law recognizes as a duty. This amounts to saying that a contract is a legally enforceable promise. But a promise is legally enforceable only if it is a contract. Thus nothing less than the whole body of applicable precedents suffices to define the term ‘contract.’”

The master rule can be explained as the conjunction of three rule-elements that reflect both *Restatement* rules quoted above and Justice Loevinger’s observation. Using the glossary of propositional names provided above (on pages 113–114), we may express the first rule element (in the master rule) as follows.
4. First element: rule for “prima facie” contractual obligation

**Rule (1):** There is offer and acceptance and consideration if and only if there is prima facie contractual obligation: \((O \land A \land C) \equiv F\)

Note that ‘O’, ‘A’, and ‘C’ are an abstract representation of all the sub-rules (in a given jurisdiction) that determine whether there is offer, acceptance, or consideration – including express contract provisions and provisions that are implied in fact or implied in law.

See, e.g., the rules in Normile, Petterson, Baehr, Pennsy, Restatement (Second) of Contracts §§ 17, 24, 26, 33, 50, 58, 59, 60, 71, 73, 81

Using the same propositional variables, we may express the second rule-element in the master rule as follows.

5. Second element: rule for (all) defeater doctrines

**Rule (2):** If there is prima facie contractual obligation, and it’s not the case that the sufficient conditions for some defeater doctrine rule are true, then there is contractual obligation, all things considered: \((F \land \sim T) \supset K\)

Note also that Rule (2) entails

**Rule (2’):** \(\sim K \supset (\sim F \lor T)\)

**Comments on Rule 1 and Rule 2**

Rule (1) is a representation in logical language of a rule, a truth-functional logical proposition, that is true (that is, is endorsed and recognized by the proper legal authorities) in every American jurisdiction. When each of the logical criteria O, A, and C is true, the requirements of “formation” have been met, i.e., F is true. Note that the truth (authoritativness) of Rule 1 and the truth of each of the logical criteria O, A, and C entail the truth of F. However, it is not the case that the truth (authoritativness) of Rule 1 and the truth of each of the logical criteria O, A, and C entail the truth of K. Another way to express this point: when there is an offer, an acceptance, and consideration there is *prima facie contractual obligation* (i.e., F is true), but those facts are not sufficient to support the inference that there is *contractual obligation all things considered* (that is, those facts are not sufficient to support the inference that K is true). Why not? Because under Rule (2) there are some circumstances (truth conditions) in which the inference from the truth of each of the logical criteria O, A, and C to the truth of K is “defeated”; namely, when T (the proposition ‘the sufficient conditions for some “defeater doctrine” rule are true’) is true.

Rule (2) is a truth-functional logical proposition, which that means both that the requirements of formation have been met, i.e., each of the logical criteria for the rule of prima facie contractual obligation (O, A, and C) is true, and that it is not the case that the sufficient conditions of any rule for any defeater doctrine are also
true. In that case there is contractual obligation all things considered and not just ‘prima facie’ contractual obligation (that is, the truth of F and ~T entails the truth of K). Note that the abstract logical form of all defeater doctrines represented by Rule (2) reflects the logic of all of the many specific rules for defeater doctrines (including mistake, fraud, duress, economic duress, undue influence, changed circumstances, statute of frauds, conditions, misrepresentation, and non-disclosure).

6. Third element: rule for enforcement on grounds of reliance

The final element in the master rule recognizes the special role that Restatement 2nd § 90 plays in the assessment of contractual obligation. Using the glossary of propositional names provided above, we may express the third rule element (in the master rule) as follows.

Note: Although we use Restatement (Second) of Contracts § 90 as the central example of reliance-based enforcement of promises, other rules, such as those in Restatement (Second) of Contracts §§ 45, 87(2), and 139 are also rules that could yield enforcement of a promise that would not be enforceable on the basis of consideration. We could make simple adjustments to our master rule to reflect that fact for jurisdictions that enforce promises under those additional estoppel rules.

Rule (3): “If there is a promise, and there is a promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person, and there is a promise which does induce such action or forbearance on the part of the promisee or a third person, and injustice can be avoided only by enforcement of the promise, then there is contractual obligation, all things considered”: (P ∧ R ∧ D ∧ I) ⊃ K

Note that Rule (3) entails

Rule (3’): ~K ⊃ (~P v ~R v ~D v ~I)

Comments on Rule 3

Rule (3) is a truth-functional logical proposition, which means that when the logical criteria for the rule of reliance-based contractual obligation (P, R, D, and I) are all true, there is contractual obligation all things considered (i.e., the truth of each of P, R, D, and I, entails the truth of K). Note that this rule could be modified (slightly) to reflect the whole “family” of reliance-based enforcement rules (such as Restatement 2nd § 45, § 87(2), § 139). Please be careful to note that, as we have repeatedly observed in the cases, different jurisdictions may have different elements in the same “basic” rule, whether in their rules as stated (compare Restatement (Second) of Contracts § 90 with the promissory estoppel rule in Katz or in Kmoch) or in their rules as authoritatively applied (compare the promissory estoppel rule stated in Wright v. Newman with the promissory estoppel rule the court seems to have applied in that case).
Note that neither this rule nor any other of the family of reliance-based rules is subject to any defeater doctrine. To see why, consider this question: given the rationales and rules of American contract law, is it possible to have merely “prima facie” contractual obligation on the basis of a reliance doctrine (Restatement (Second) §§ 45, 87(2), 90, 139) that is “defeated” by a defeater doctrine? Put another way, the question is this: could the sufficient conditions of Rule (3) all be true while K was false because T was also true? Why or why not?

Here are the three rules, repeated from the discussion above, expressed in the form of propositional logic, that we will combine to form the master rule for contractual obligation. (Again, see the glossary above, pages 113–114.)

Rule (1): \( (O \land A \land C) \equiv F \)

Rule (2): \( (F \land \neg T) \supset K \)

Rule (3) \( (P \land R \land D \land I) \supset K \)

Putting these three rules together, we arrive at the master rule for contractual obligation.

7. Master rule for “all things considered” contractual obligation

Rule (4): \( ((O \land A \land C) \equiv F) \land ((F \land \neg T) \lor (P \land R \land D \land I)) \equiv K \)

Query: Why is the final logical operator a biconditional? Because Rules (2) and (3) specify the only ways we can reach K—that is, they are not only (disjointly) sufficient conditions, but they are the sole sufficient conditions for K.

Rule (4) entails a rule that may be easier to use:

Rule (5): \( ((O \land A \land C \land \neg T) \lor (P \land R \land D \land I)) \equiv K \)

Finally, note that Rule (1), Rule (2’) and Rule (3’) entail a master rule for no contractual obligation (\( \neg K \)):

Rule (6): \( \neg K \supset ((\neg O \lor \neg A \lor \neg C \lor T) \land (\neg P \lor \neg R \lor \neg D \lor \neg I)) \)

8. Using the master rule: some examples

To see how these rules might be put to use in analyzing a fact pattern, try to use the rule to help answer the following questions:

(i) Suppose a judge determines that O is true, and it seems that C is true, but not A. Do we know that K is false?

No, under Rule 3.

(ii) Suppose the judge determines that O and C are true, but neither the writings nor oral communications explicitly show that A is true. Do we know that F is false?

No, A could be implied in fact—inference to the best factual explanation could yield the conclusion that there is a contract even when neither the oral nor written
communications prove that A was true. (E.g., *Wood v. Lucy*; see also distinction in *Commerce Partnership* and *Pelo* of “implied in fact” and “implied in law”.)

(iii) Suppose the judge determines O, A, and C are all true. Do we know that there is K?
No, we must consider potential defeater rules, Rule 2.

(iv) Suppose the judge determines that O, A, and C are all true, but that T is true by virtue of the specific defeater of unconscionability. In this circumstance, is there any way that K could be true?
No, because for this defeater, I couldn’t be true while the sufficient conditions of unconscionability were also true, so there could be no liability under Restatement (Second) of Contracts § 90, nor would there be under traditional O, A, and C.

(v) Suppose the judge determines that O, A, and C are all true, and that T is also true. Do we know that K is false?
The deep issue here is this: is it possible, for some defeater doctrines, that the abstract T could be true while I is also true? For some defeater doctrines – such as mutual mistake, changed circumstances, failed conditions (this is expressed in some rules on conditions) – it seems quite likely that their sufficient conditions could be true while I is also true. However, is this true under most versions of unilateral mistake? No, because that doctrine incorporates unconscionability.

(vi) In light of your answers to (i) through (v), using the glossary offered above, can you fashion a “master rule” that could help determine, for any fact pattern you encounter, whether the “best explanation” of that fact pattern from a legal point of view is that K is true?
Note that if you understand the correct answers to (i) through (vi)–that is, if you understand why the answers that are correct are correct–you understand the logic of the master rule explained below!

9. Comments on Master Rule: the analytical value of understanding this rule

Recall that, as we have discussed earlier in the semester, the plaintiff typically bears the burdens of pleading, production, and persuasion for each of the logical elements in the antecedent of this rule except ~T (the defendant must carry the burdens of *pleading* and *production* for any defeater doctrine rule; but the plaintiff must then try to overcome such proof as the defendant pleads and attempts to prove, that is, the plaintiff must carry the burden of *persuasion* that ‘~T’ is true). Many, perhaps most, judges evaluating a contracts claim consider first the question of whether a contract has been formed on the standard “classical” basis of contractual liability, namely, whether there has been a bargained-for exchange (recall that, according to our class text, “While virtually every jurisdiction has accepted the doctrine…promissory estoppel claims are rarely successful”). Thus, when you are considering whether the best legal explanation of some facts is that there is contractual obligation all things considered you may wish to proceed in your analysis as follows.
(i) Determine whether each of the elements in the left side of Rule 1 (namely, each of O, A, and C) is true. If so, then there is prima facie contractual liability (F is true).

(ii) If F is true, determine whether the sufficient conditions of any defeater doctrine are true (which in turn would make ~T false, i.e., would make T true).

(iii) If it is not the case that any set of sufficient conditions for any defeater doctrine are all true (that is, if T is false) and F is true (because each of the elements in the antecedent of Rule 1–O, A, and C–is true), you now know that there is at least one set of rule elements that makes K true (i.e., that there is contractual obligation, all things considered). However, for the sake of thoroughness, you should also consider whether, on the facts of your case, the sufficient conditions of any reliance-based rule are also true. (Recall Federal Rule of Civil Procedure 8(e)(2): “A party may also state as many separate claims or defenses as the party has regardless of consistency and whether based on legal, equitable, or maritime grounds.”)

(iv) If some element in the antecedent of Rule 1 (namely, the elements O, A, C) is not true, then consider whether the sufficient conditions of any reliance-based rule are true (such as Restatement 2nd §§ 45, 87(2), 90, or 139).

(v) If the sufficient conditions of any reliance-based rule are true, then there is a set of rule elements that makes K true.

(vi) If in your analysis in steps (i) through (vi) you have concluded that there is no enforceable promise (i.e., that ~K is true), you may use Rule (6) to confirm your judgment by assuring yourself that at least one of the following elements in each of the following two sets is also true:

\[
\begin{align*}
\text{set 1:} & \quad \sim O, \sim A, \sim C, T \\
\text{set 2:} & \quad \sim P, \sim R, \sim D, \sim I
\end{align*}
\]

(vii) If in either steps (iii) or (vi) you’ve determined that there is contractual obligation, all things considered, then you should assess whether there has been a failure to perform by one of the parties. If so, the other party may be entitled to damages (damages are due when there is a non-excused non-performance of a contractual obligation).

10. Special note on the use of formal logical tools

Taken together, a firm grasp of the logical facts of contract rules, together with an understanding of the rationales (policies and principles) that undergird those rules, will enable you to be a very skilled consumer, producer, and critic of arguments in contract law. But I close this handout by emphasizing a point I’ve made in class. You are not required—either in this class or other classes, or in your work as lawyers (or even judges!), to use the formal machinery of logic that we have developed. It was offered to you only because it is one method for sharpening your
awareness of the logical facts of the application of contracts rules to a fact pattern. (An example of one “logical fact” about the rule in Restatement (Second) of Contracts § 90: if it’s not the case that injustice can be avoided only by enforcing a promise, then there will be no reliance-based enforcement of that promise.) As is obvious, judges and lawyers do not use logically formal terminology when they argue and assess arguments. But they clearly strive to be aware of the logical facts of the rules as they apply the rules to fact patterns.

This is, however, not to say that they always are aware of those logical facts, or that they don’t make mistakes. They do, all too often, as we have seen (e.g., in Dale Horning’s reading of Comment 4 in UCC § 2–207). In fact, using the logical terminology we have developed to help analyze fact patterns (in inference to the best legal explanation) may help one avoid making mistakes about the logical facts, especially, but not only, when one encounters the kind of logically dense rules exemplified by UCC § 2–207. And recall that, as I’ve explained, logically dense rules like these are increasingly applicable to contracts fact patterns. In several of the cases we’ve read the judges have been very admirably aware of the logical facts of rules as applied to fact patterns. Among those that are exemplary are the opinions in Brown Machine, Watts v. Watts, and Commerce Partnership. What is needed, both in this course and beyond, is an acute awareness of the logical facts. You do not need to use logical terminology to display that awareness.

Finally, note that an acute awareness of the logical facts of rules is not by any means the only or the most important part of your analysis. Understanding the policies and principles that serve as rationales for contract rules (classical vs. romantic) is a vitally important part of contract analysis. But without an awareness of the logical facts, one cannot well understand the policy or principle ramifications of a given rule – think, for example, about the way in which the Joyner court seems to have overlooked, because it apparently thought it was simply restating the Restatement version of the rule, which it in logical fact was not, the policy question of whether the “whose meaning prevails” rule should allow for degrees of fault. Or the way in which the Dale Horning court’s misreading of the logical facts of the rule in Comment 4 apparently led it to overlook the implausibility, as a matter of policy, principle, and statutory intent, of a rule that would allow any party who had in fact been surprised by a different or additional term to have that term excluded as a “material alteration” under 2–207(2)(b)–even if that surprise was unreasonable.

[End of Handout Material]
V. Concluding comments on the Logocratic use of propositional deductive Logic to teach American Contract Law: On the criteria for using propositional vs. predicate logic for representing rule enthymemes

As is evident from the foregoing handout, when I “rulify” a rule-enthymeme or argument-enthymeme in deductive logic, I use the form of propositional logic. I make this choice because teaching the basics of propositional logic is fairly straightforward – and there is a guaranteed proof procedure, the truth table, because propositional logic is truth functional. Nevertheless, it seems that first-order predicate logic is a better choice for representing legal rules and legal arguments. Legal process seems to be about individuals and their properties. But many believe that even predicate logic is inadequate to represent legal argument, that modal and deontic logic are needed, for example, to capture Hohfeldian modalities in logical form.

My focus is not what is the ideal deductive form for legal argument, but what form is both accurate and pedagogically feasible. It would not be feasible to teach predicate, modal and deontic logic in any serious way during a Contracts class – I have a hard enough time getting the students to use the basic propositional calculus. And I rush to add, lest someone accuse me of being a “wooden formalist,” that I do not claim that all legal argument can be adequately represented by deduction. As I stated at the outset and have explored in other work, I believe that all four modes of logical inference operate in legal argument, induction, analogy, and IBE, along with deduction. My current concern is only with the criteria one uses to determine which form of deduction is either acceptable or required when the argument is fairly represented as a deductive argument.

I think this is a very important issue, one that seems to have gotten very little attention from those of us who “take logic seriously” in using it to model and analyze legal argument. Again, robust discussion of this issue is beyond the scope of this paper, but some generalizations and a couple of examples occur to me.

Consider again the rule enthymeme, examined above, in *Restatement (Second) of Contracts* § 90:

A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise. The remedy granted for breach may be limited as justice requires.

How should we rulify this rule? Is propositional logic sufficient? Do we need predicate (or modal, or deontic) logic adequately to represent it? In the discussion above, and for years in teaching Contract law, I use only propositional logic. Using these propositional constants –
P: There is a promise.
R: There is a promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person.
D: There is a promise which does induce such action or forbearance on the part of the promisee or a third person.
I: Injustice can be avoided only by enforcement of the promise.
K: There is contractual obligation, all things considered [i.e., there is an enforceable promise, see Restatement 2nd § 1]

I model the rule thus:

\[(P \land R \land D \land I) \supset K\]

This provides a pedagogically and conceptually simple way to determine where there is contractual liability under this rule: each of the jointly sufficient conditions P, R, D, and I must be true. (What I mean by ‘under this rule’ is that if we assume that the only way to get to K is by this rule’s antecedent, then the jointly sufficient conditions also become individually necessary. Some writers refer to this as the “sole sufficient condition rule,” namely, that if P is a sufficient condition for Q and it is the sole sufficient condition for Q, then it’s also a necessary condition for Q, and in effect, P \supset Q is operating as ‘P \equiv Q’.)

Is this adequate? One wonders especially about the uniqueness requirement in what I have labeled ‘I’ – Injustice can be avoided only by enforcement of the promise. I have glossed over that requirement, modeling it as if a judge just decides whether it is true or false, overall, that the enforcement of the promise (K) is the only way to avoid injustice.

To ponder this question of adequacy of representation, consider how we might represent § 90 in predicate logic. Again, the rule-enthymeme is:

A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise. The remedy granted for breach may be limited as justice requires.

With these elements

\[Px = x \text{ is a promise that the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person}\]
\[Dx = \text{promise } x \text{ does induce action or forbearance the part of the promisee or a third person}\]
\[Bx = x \text{ is binding}\]
\[Mx = \text{the enforcement of } x \text{ is a method of avoiding injustice}\]

we might rulefy § 90 as follows:

---

21 The operation of this rule is vital for understanding why judicial decisions are not constantly committing the fallacy of denying the antecedent. See the discussion in Brewer, Exemplary Reasoning, p. 998 note 215.
The Logocratic Approach

\[(x) \left( ((P_x \land D_x) \land (M_x \land (y) (M_y \supset y = x))) \supset B_x \right) \]

The predicate-logic rulification seems superior to the propositional-logical rulification in at least one way: it reveals more of the logical structure that a fair reading discloses is in the rule enthymeme. The rule does say that in order for a contract to be binding (what I labeled ‘K’ in the propositional logic version), enforcing the promise must be the \textit{only way} to avoid injustice.

My sense is that the less revealing, but pedagogically much easier-to-grasp propositional logical form is usually, perhaps always adequate. If there is a question about whether a given promise and that promise alone is required to avoid injustice, a legal analyst could reason separately about that, offering a kind of lemma to show that ‘I’ (injustice can be avoided only by enforcing the promise) is true. This is something of a workaround, but my current thought is that it’s workable. After all, one could unpack the old Socrates syllogism – surely a creature of predicate logic (‘All men are mortal, Socrates is a man, therefore Socrates is mortal), in propositional logic, thus:

\begin{align*}
P: & \quad \text{Something is a man} \\
Q: & \quad \text{Something is mortal} \\
& \quad P \supset Q \\
& \quad P \\
& \quad \text{therefore} \\
& \quad Q
\end{align*}

– although one would have to know “outside” the argument, as it were, that the something in question was the individual Socrates. If one keeps that in mind, the trade of transparency within the representation (which we get with predicate logic) against the comprehensibility and utility to the non-logician of a method like the Logocratic Method (which we get with propositional logic), seems worth it.

References


Holmes, Jr., Oliver Wendell: The Common Law, 1881.


