A MODEL OF PRESUMPTION AND BURDEN OF PROOF

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Why Presumptions are Needed

• The need for making a presumption arises during the argumentation stage when a particular argument is put forward by one side.
• A problem arises because there is some particular proposition that needs to be accepted at least tentatively before the argumentation can move ahead, but at that point in the dialogue, this proposition cannot be proved because the evidence that is available so far is insufficient.
• The circumstances are such that collecting it would mean a disruption of the dialogue, because it would be too costly or take too much time to conduct an investigation to prove or disprove this proposition by the standards required for properly accepting or rejecting it.
BoP in Law and Everyday Argument

• In law, what is called the “normal default rule” is that the party who makes the claim has the burden of proof, but this rule is defeasible.
• Under Roman law, the plaintiff had to make his case first (onus probandi), and the defendant could then argue against it.
• This same general principle, “He who asserts must prove”, would appear to be applicable to everyday argumentation as well.
BoP and Presumption

• It is often said that a presumption is a device that shifts a burden of proof back and forth from one side to the other in a dialog.
• However, presumption is one of the slipperiest concepts in law, according to *McCormick on Evidence* (Strong, 1992, 449).
• There are many different theories of presumption in argumentation studies from Whately onwards, summarized in (Godden and Walton, 2007).
Shifting the BoP Back and Forth

<table>
<thead>
<tr>
<th>Moves</th>
<th>Proponent</th>
<th>Respondent</th>
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<tbody>
<tr>
<td>1.</td>
<td>$P$</td>
<td>Why should I accept $P$?</td>
</tr>
<tr>
<td>2.</td>
<td>$P$ is a presumption.</td>
<td>I don’t accept $P$. Prove $P$.</td>
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<tr>
<td>3.</td>
<td>You have to accept $P$, unless you have some evidence against it.</td>
<td>Why?</td>
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<td>4.</td>
<td>Because $P$ is a presumption.</td>
<td>The BoP is on you to prove $P$.</td>
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<td>5.</td>
<td>No, the BoP is on you to disprove $P$.</td>
<td>No, the BoP is on you to prove $P$.</td>
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<td>No, the BoP is on you to disprove $P$.</td>
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Rescher’s Theory

- Rescher wrote (2006, p.6) that a presumption is not a form of evidence arising from factual knowledge, but rather something we take to be acceptable on a tentative basis in a situation where there is a lack of evidence for not accepting it.
- On his account, “a presumption indicates that in the absence of specific counterindications we are to accept how things as a rule are taken as standing” (Rescher, 1977, p. 30).
- On his theory, presumption needs to be understood in relation to shifts of a BoP (Rescher, 1977, 27).
1. The Ride Home Example

• Art normally leaves the office to walk home every day at 4:00 PM. Betty normally meets Art on Wellington Crescent at exactly 4:30 PM every weekday in order to give him a lift home. But sometimes they need to cancel this arrangement, for example if Art wants to walk all the way home, or if there is very bad weather. To make this arrangement work, it would be tedious if they had to phone each other every day to confirm pickup or not.
• For these reasons they adopted the convention that if one does not hear from the other on any given day before 4:00 PM, the presumption in place is that they will meet on Wellington Crescent at 4:30 PM.
2. The Dr. Livingstone Example

- The second example, summarized from the more detailed account given in (Walton 1992, 62) is often taken to be the classic case of a presumption.
- Dr. David Livingstone left England in 1866 on an expedition to try to find the source of the Nile. Subsequently, very little was heard of him but he was thought to be in a certain area near Lake Tanganyika.
- Henry Morton Stanley reached this area in 1871 and saw a pale, gray bearded white man wearing a navy cap in the center of a large crowd of tribesmen and Arabs who came rushing toward him. At that point Stanley uttered his famous words, “Dr. Livingstone I presume.”
Characteristics of a Rule (Gordon, 2008)

1. Rules have properties, such as their date of enactment, jurisdiction and authority.
2. When the antecedent of the rule is satisfied by the facts of a case, the conclusion [consequent] of the rule is only presumably true, not necessarily true.
3. Rules are subject to exceptions.
4. Rules can conflict.
5. Some rule conflicts can be resolved using rules about rule priorities, e.g. lex superior, which gives priority to the rule from the higher authority.
6. Exclusionary rules provide one way to undercut other rules.
7. Rules can be invalid or become invalid. Deleting invalid rules is not an option when it is necessary to reason retroactively with rules which were valid at various times over a course of events.
3. The Library Example

- The third example is summarized from (Walton 1992, 69).
- A memo was sent to all university faculty members from the university library telling them that a large backlog of old examination papers no longer being used by students had piled up.
- The memo went on to say that unless the sender hears from any faculty that anyone still wishes to keep these papers, they will be withdrawn from circulation.
- The presumption set in place is that is if we (the library) don’t hear from you (the faculty member) it will be presumed that you are OK with the withdrawal.
4. The Presumption of Death Example

- The fourth example is presumption of death in law. For example, suppose that a person has disappeared, and no trace has been found of him. Should we assume that he is still alive, or after a number of years, can it be assumed that he is dead?
- In order to deal with issues concerning wills and estates, a court can rule that a person is presumed to be dead for legal purposes if there has been no evidence that he is still alive for the last X years.
- In such a case, there is a presumption that the person is dead, even though there is no hard evidence to support it, apart from his having disappeared X years ago.
5. The Letter Example

- The fifth example is a kind of case often cited as an example in textbooks on evidence law.

- In this version (summarized from Park, Leonard and Goldberg, 1998, 107) the plaintiff suffered a fall on a dark stairway in an apartment building. He sued the defendant, the building’s owner, claiming that she did not keep the stairway in a safe condition, because the lighting did not work properly. To prove notice, the defendant claimed she mailed a letter to the plaintiff, informing him that several of the lights in the stairway no longer worked.

- The legal presumption is that he received the letter, in the absence of evidence to the contrary.
Components of Presumptive Inference

- There are three parts to the form of inference defining a presumption (Ullman-Margalit, 1983, 147).
- The first part is the presence of the presumption-raising fact in a particular case at issue.
- The second part is what she calls the presumption formula, a defeasible rule that sanctions the passage from the presumed fact to a conclusion.
- The third part is the conclusion that is inferred: a proposition presumed to be true on the basis of the first two parts of the inference structure.
Characteristics of a Fact

• A fact corresponds to what in logic is called a simple proposition, as contrasted with a rule, which takes a conditional form and therefore is classified in logic as a complex proposition.

• The set of facts can be added to or deleted from during the argumentation stage. For example, a new fact can be introduced that is an exception to a rule.

• A fact is a proposition that is accepted as true, by criteria, even though it may later turn out to be false.

• In law, the facts of a case consist of the evidence judged to be admissible at the opening stage of a trial. A fact is a judicially admitted proposition.
Defining Burden of Persuasion

• Burden of persuasion is set at the opening stage of a persuasion dialog.
• In contrast, presumptions and evidential burdens are brought into play at the argumentation stage.
• Burden of persuasion has three components: (a) a contained proposition representing one arguer’s thesis (ultimate probandum), (b) which arguer (proponent or respondent) has that thesis, and (c) a standard of proof required for proving that thesis.
Different Burdens of Proof in Law

• **Burden of Persuasion** (also called legal burden of proof): in a murder trial, the prosecution must prove the charge that the defendant committed murder.

• **Evidential Burden** (also called burden of production): if a person accused of burglary is found carrying “burglarious implements”, an evidential burden is placed on him to give some explanation of why he had such articles in his possession. If he fails to do so, the conclusion can be drawn he was carrying them to commit burglary.
The Prakken and Sartor Theory

• On the theory of Prakken and Sartor (2009, 228), the burden of persuasion in a trial specifies which party has to prove the statement at issue in the trial to a degree specified by the proof standard for that type of trial.

• They describe this burden of persuasion as being in place throughout the whole trial and as being the criterion used at the final stage to determine which side has won or lost.

• In contrast, they describe a local burden, called the burden of production called the evidential burden, which specifies which party has to offer evidence on different points being disputed as the trial itself proceeds.
Standards of Proof (CAS, version 2)

- Scintilla of Evidence
  - There is at least one applicable argument
- Preponderance of Evidence
  - The scintilla of evidence standard is satisfied, and
  - the maximum weight assigned to an applicable pro argument is greater than the maximum weight of an applicable con argument.
- Clear and Convincing Evidence
  - The preponderance of evidence standard is satisfied
  - the maximum weight of applicable pro arguments exceeds some threshold $\alpha$, and
  - the difference between the maximum weight of the applicable pro arguments and the maximum weight of the applicable con arguments exceeds some threshold $\beta$.
- Beyond Reasonable Doubt
  - The clear and convincing evidence standard is satisfied and
  - the maximum weight of the applicable con arguments is less than some threshold $\gamma$. 
Presumption of Innocence: a Misnomer

• Assignments of the burdens of proof prior to trial are not presumptions. Burden of proof is set by law before the trial. In a criminal case the burden of proof is determined by the beyond reasonable doubt standard. In a civil case the standard is the preponderance of the evidence.

• In some instances, however, these burdens are incorrectly referred to as presumptions. The most glaring example of this mislabeling is the “presumption of innocence” as the phrase is used in criminal cases. Properly it should be called burden of persuasion, not presumption of innocence.

Presumptive Reasoning

• The Prakken-Sartor (2006) theory sees presumption as equated with the rule that is part of a presumptive inference.
• However, the approach here defines presumption in terms of the whole presumptive inference with three components, one of which is the rule.
• Thus the approach here sees presumption as being (1) a distinctive form of defeasible inference plus something else (2) a shift of the BoP set in the opening stage of a dialogue.
Back to the Examples

• How would we model the argumentation in these five examples on the approach advocated here?
1. The Ride Home Example

• In this example, it is presumed that if neither person calls the other during the day, both will be on Wellington Crescent at 4:30 PM that day.

• In this case the presumption is put in place by acceptance of an earlier general convention (rule) agreed upon by the two parties. Unless one party contacts the other and cancels the conventional agreement temporarily for that particular day, it is assumed that the convention is to be taken as applicable by both parties on that day.

• In the absence of evidence of any exception to the general rule, the convention adopted by both of them is taken to imply that the presumption holds.
2. The Dr. Livingstone Example

- On the basis of common knowledge applicable at the time, it would be reasonable to expect that there would be very few or no other persons having the appearance of this person other than Livingstone in this area.

- It is possible that this person could be someone else. But Stanley did not ask the individual whether he was in fact Livingstone or not.

- Perhaps for reasons of politeness he simply called him Livingstone. This left Livingstone room to deny it, if in fact he wished to do so.

- But if he made no move to deny it, Stanley would draw the reasonable conclusion that he was Livingstone.
>3 The Library Example

- The third example shows that absence of evidence of anyone expressing disagreement with the proposal to withdraw the old examination paper from circulation will be taken as constituting support for going ahead.
- This use of a presumption shifts an evidential burden onto the disagreeing party to offer some reason why the papers should not be withdrawn.
- The dialogue can continue back and forth in such a case.
4. The Presumption of Death Example

- A son who wants to collect his father’s estate has a burden of persuasion to prove that his father is dead.
- There is no evidence of death, but the father has been absent for x years.
- The son can fulfill his burden of persuasion by proving that his father has been absent for x years.
- LEGAL RULE: The proof that a person has been absent for x years raises a presumption that the person died during the seven years (*McCormick on Evidence*, Strong, 1992, 457).
The plaintiff suffered a fall on a dark stairway in an apartment building.

She sued the defendant, the building’s owner, claiming that he did not keep the stairway in a safe condition, because the lighting did not work properly.

To prove notice, the plaintiff claimed she mailed a letter to the defendant, informing him that several of the lights in the stairway no longer worked.
The Legal Rule in the Letter Example

• RULE: A letter properly addressed, stamped, and deposited in an appropriate receptacle is presumed to have been received in the ordinary course of the mail (Park, Leonard and Goldberg, 1998, 103).

• Unless the presumption created by this rule is rebutted, the properly addressed, stamped, and deposited letter will be deemed to have been received in what is considered to be the ordinary amount of time needed in that delivery area (Park, Leonard and Goldberg, 1998, 103).
Deductive Inference as a Linked Argument

Socrates is a man (Premise).

If Socrates is a man, then Socrates is mortal (Conditional Premise).

Modus Ponens

Socrates is mortal (Conclusion).
Presumptive Inference Format

Factual Premise (Single Proposition)

Defeasible Rule Premise (Conditional)

Defeasible Modus Ponens

Presumption (Conclusion)
The Burden of Persuasion in the Letter Example

• The plaintiff sued the building owner, claiming he did not keep the stairway in a safe condition.
• In civil law, this claim needs to be proved on a preponderance of the evidence.
• Her ultimate probandum was the proposition that he did not keep the stairway in a safe condition.
• Hence the burden of persuasion was on her to prove that the stairway was unsafe.
The Arguments on Both Sides

• The argument the plaintiff gave to prove her claim that the stairway was unsafe was that the lighting did not work properly.

• This argument would be defeated, however, if the defendant had informed her beforehand that some of the lights in the stairway no longer worked.

• To defeat it, the defendant argued he had sent the plaintiff a letter informing her that several of the lights in the stairway no longer worked.
Strong Argument

• Since this is a civil case, all the plaintiff has to do to win is to prove to the standard of the preponderance of the evidence that the defendant is liable for injuries she sustained while walking down a dark stairway in a building that he owned.

• This seems like a strong argument because it is supported by evidence that the lighting in the stairway did not work properly and therefore the stairway was unsafe.

• Moreover the owner of the building, the defendant is responsible for keeping the stairways in a safe condition.
The defendant is liable for the plaintiff's injury.

a1

The building was owned by the defendant
The owner is responsible for keeping the stairway safe.
The defendant did not keep the stairway in a safe condition.

a2

The stairway was unsafe.

a3

If the lighting did not work properly the stairway was unsafe.
The lighting did not work properly.
Defeasible Modus Ponens

• Notice however that the *modus ponens* argument at the bottom right is not a deductive type of *modus ponens* argument but a defeasible one.

• It could be that even though the lighting did not work properly, there might be some reason defeating the argument to the conclusion that the stairway was not safe.

• For example it is possible that lighting from the room leading to the stairway sufficiently lighted the stairway so that it was arguably not unsafe under these conditions.
Defeasible Modus Ponens (DMP)

- Major Premise: $A \Rightarrow B$
- Minor Premise: $A$
- Conclusion: $B$
The Defendant’s Counterargument

• How could the defendant produce a counterargument? If he could argue that he had warned the plaintiff that the stairway was unsafe, this could be an argument.

• He could argue that he had mailed a letter to the plaintiff informing her that the lights in the stairway no longer worked.

• But the problem is that simply his statement that he had mailed such a letter, even with evidence backing it up, is only a probabilistic basis for concluding that the plaintiff actually received the letter and was therefore warned about the lights no longer working.
The defendant is not liable for the plaintiff's injuries.

If the defendant had warned the plaintiff that the lights no longer worked, he is not liable for injuries.

The defendant had informed the plaintiff that the lights no longer worked.

The plaintiff received the letter from the defendant.

If the plaintiff received the letter from the defendant, he had warned her that some of the lights no longer worked.

Presumptive Inference

If one party mailed a properly addressed, stamped letter to another party, it is presumed that the other party received the letter.

The defendant mailed a properly addressed, stamped letter to the plaintiff warning her that the lights no longer worked.
Presumption Linked to BoP

- In this case the defendant’s argument is not very strong because just because he put the letter in the mail, it does not follow by deductive logic that she received the letter, read it and was warned.
- But it shifts a burden of proof to her side.
- Unless she can provide some evidence that she did not receive the letter, his argument, as imperfect as it is deductively, will stand a good chance of prevailing on a basis of the balance of probabilities.
Problem #1: Presupposition

• What’s the difference between a presumption and a presupposition?
• The king of France is bald [presupposition that there is a King of France].
• A presupposition is like a missing assumption that is part of an assertion, and that was presumably accepted by the hearer at some previous move in the dialogue sequence.
Problem #2: Defeasible Reasoning

- Reasoning on the basis of accepting a presumption is a species of defeasible reasoning, but is not the same thing as defeasible reasoning.
- Defeasible reasoning is provisional acceptance of the conclusion where the argument used to derive the conclusion has at least one premise that is a generalization that is subject to exceptions.
- All defeasible reasoning is presumptive because the conclusion is presumptive.
- But if there are non-rebuttable presumptions, then it is true that
Problem #3: Rebuttable Presumptions

- In law, a distinction is often drawn between rebuttable and non-rebuttable presumptions.
- In argumentation studies, it is often claimed that some presumptions are conclusive (non-rebuttable) while others are defeasible.
- Wigmore and others, however, took the view that all presumptions are rebuttable.
- Are some presumptions conclusive, or are they all inherently defeasible?
Problem #4: Rebuttal of Presumptions

- How are presumptions rebutted?
- There seem to be three different ways of attacking a presumptive inference?
- You can (1) cast doubt on the facts, (2) attack the rule, or (3) mount an opposed argument for the opposite of the proposition in the conclusion.
- How does the distinction well known in AI between rebutters and undercutters apply? Is an undercutter an argument that attacks the inference link, or merely an argument attacking a rule?
Problem #5: Lack of Evidence Inferences

• What is the difference between a presumptive inference and a lack of evidence inference (called argumentum ad ignorantiam in logic)?

• **Premise**: There are no known cases of Roman military medals given posthumously.

• **Conclusion**: The Romans did not give military medals posthumously.

• **Implicit Premise**: If there were cases of Roman posthumous medals, we would know about them (by evidence on gravestones etc.).
References


Rescher Form of Presumptive Inference

• **Premise 1**: $P$ (the proposition representing the presumption) obtains whenever the condition $C$ obtains unless and until the standard default proviso $D$ (to the effect that countervailing evidence is at hand) obtains (Rule).

• **Premise 2**: Condition $C$ obtains (Fact).

• **Premise 3**: Proviso $D$ does not obtain (Exception).

• **Conclusion**: $P$ obtains. [2006, 33]
Inference and Presumption

• An inference arises from premises that have evidential weight, meaning they are factual and supported by appropriate factual evidence.
• A presumption arises from a rule that is established for procedural and/or practical purposes in a type of rule-governed dialog (like a trial).
• In law, the distinction is drawn as follows: “[An] inference arises only from the probative force of the evidence, while the “presumption” arises from the rule of law” (Whinery, 2001, 554).
The Fair Trial as a Type of Dialogue

• This normative model of a fair trial is built around concepts drawn from semi-formal logic, where an argument has two levels, an inferential level and a dialectical level.

• At the inferential level, an argument is made up of the inferences from premises to conclusions forming a chain of reasoning. But such a chain of reasoning can be used for different purposes in different types of dialog. When reasoning is used as argumentation in a dialog, it needs to be studied at a dialectical level.

• There are different types of dialog, and each has its characteristic goals set at the opening stage. One type of dialog is a persuasion dialog, in which one party has the goal of persuading the other party to accept a particular proposition called its claim or thesis.