Burdens of proof and presumptions

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Burdens of proof (legally)

- **Burden of production** for P: who loses on P if no evidence for P is provided during a proceeding?
- **Burden of persuasion** for P: who loses on P in the end if the evidence on P is balanced?
- **Tactical burden**: who would likely lose on P if the present stage were the final stage?
Dialectical status of conclusions

- P is **justified** = P is the conclusion of a justified argument
- P is **overruled** = all arguments for P are overruled (and there exists at least one such argument for P)
- P is **defensible** = P is not justified and P is the conclusion of a defensible argument
Defining burden of proof (formally)

- **Burden of production** for P = task to construct a sensible argument for P during the initial stage at which P becomes relevant
  - Does not shift
- **Burden of persuasion** for P = task to have a justified argument for P in the final stage
  - Does not shift
- **Tactical burden** on P: do something to make your favoured outcome on P likely if the resulting stage were the final stage
  - Can shift any number of times
- Argumentation logic is applied to each stage in a proceeding
Burdens of proof: example

Prosecution has *burden of production and persuasion* for Murder, Killing and Intent

R1: If Killing & Intent then Murder
R2: If Selfdefence then not R1
Burdens of proof: example

Prosecution has burden of persuasion for Murder, Killing and Intent

Defence has tactical burden to do something, and burden of production for Selfdefence

R1: If Killing & Intent then Murder
R2: If Selfdefence then not R1
Burdens of proof: example

Prosecution has tactical burden to do something, and burden of persuasion against Selfdefence

R1: If Killing & Intent then Murder
R2: If Selfdefence then not R1
Burdens of proof: example

Murder
- Kill
- Intent
- Rule 1

Exception to Rule 1
- Selfdefence
  - Rule 2

Prosecution has burden of persuasion against Selfdefence

No selfdefence
Burdens of proof: example

Proof standard captured in bandwidth for mutual defeat

Prosecution has burden of persuasion against Selfdefence so must strictly defeat

No selfdefence
Presumptions: not used to allocate but to fulfill burden of proof

R₁: If Damaged & Owner then Compensation

Possession creates a legal presumption for ownership
Presumptions: they are defeasible conditionals

\[ R_1: \text{If Damaged \& Owner then Compensation} \]
\[ R_2: \text{If Possession then (presumably) Owner} \]
Their antecedent must be proven

$R_1$: If Damaged & Owner then Compensation
$R_2$: If Possession then (presumably) Owner
R₁: If Damaged & Owner then Compensation
R₂: If Possession then (presumably) Owner
They cannot be used after counterevidence

R₁: If Damaged & Owner then Compensation
R₂: If Possession then Owner
R₃: If e₄ then R₂ does not apply

Compensation

Damaged

Owner

Not Owner

Possession

e₁

R₁

R₂

e₂

R₃

e₄

n.a.R₂
Now real evidence is needed
Summary

- Various notions of **burdens** and **standards of proof** can be defined in terms of **defeasible argumentation**
  - But **dynamic** setting is needed
- **Presumptions** can be logically understood as **defeasible conditionals**
  - Not used to allocate but to **fulfill** proof burdens
Presumptions vs generative norms

- Certain legal rules are generative (they link operative facts and legal effects)
  - Regulative rules
    - damage $\Rightarrow$ Obligation to compensate
    - smokingSpace $\Rightarrow$ Permission to smoke
  - Constitutive rules
    - Has Italian Parents $\Rightarrow$ Is ItalianCitizen
    - Issued By Parliament $\Rightarrow$ Valid Law
Presumptions

- Presumptions
  - Do not generate legal effects
  - They establish what has to be assumed, unless evidence to the contrary is provided
    - Possession $\Rightarrow_p$ Ownership
    - Doctor $\&$ HarmPatient $\Rightarrow_p$ DoctorNegligent
    - $\Rightarrow_p$ Innocent
    - Possession $\Rightarrow_p$ InGoodFaith
What does a presumption do?

- The burden of production and of persuasion for the presumed conclusion is met by establishing the antecedent of the presumption-warrant.
- If evidence is provided against the presumed conclusion, the presumption no longer applies.
How to model a presumption

- One way:
  - P1: Possession & $\Rightarrow_p$ Ownership
  - R1: $\neg$Ownership $\Rightarrow$ $\neg$ P1

- Another way:
  - P1: Possession & $\sim\neg$ Ownership $\Rightarrow_p$ Ownership

- Another way:
  - P1: Possession & $\Rightarrow_p$ Ownership
  - R1: evidenceFor$\neg$Ownership $\Rightarrow$ $\neg$ P1
First way:
- P1: \( \sim \neg \text{Innocent} \Rightarrow p \text{Innocent} \)

Second way:
- P1: \( \Rightarrow p \text{Innocent} \)
- R1: \( \neg \text{Innocent} \Rightarrow \neg P1 \)
Arguments with presumptions

- **R₁**: If Damaged & Owner then Compensation
- **R₂**: If Possession then Owner
- **R₃**: If Not Owner then R₂ does not apply

Diagram:
- Damaged → R₁ → Owner
- e₁ → R₂ → Possession
- Not Owner → R₃ → E₄ (Theft)

```text
R₁: If Damaged & Owner then Compensation
R₂: If Possession then Owner
R₃: If Not Owner then R₂ does not apply
```
Arguments with presumptions

Compensation

Damaged & Owner ⇒ compensation

Damaged

Owner

ER1: possession ⇒ owner

Possession

P1: Possession ⇒ owner

Taking

ER1: Taking ⇒ ¬ owner

¬ Owner

¬ P1

E1

D

D

D

E2

E3
Reasoning about the burden of persuasion

- f1: $\Rightarrow$ ArchaeologicalItem(i)
- f2: $\Rightarrow$ PossessedBy(i, )
- F3: PrivateBefore1909(a)
- F4: $\neg$PrivateBefore1909(a)
- r6: ArchaeologicalItem(x) & PossessedBy(x, y) $\Rightarrow$ Burden(y, PrivateBefore1909(x))

Given A1 for A by x and A2 for $\neg$ A by Y, and third argument A3 stating that Burden(y, A), A1 strictly defeats A2

- Prakken & Sartor 2007
Default and inverted burdens of persuasion

- If plaintiff does not meet its default burden of persuasion on a proposition $\rho$ supporting her claim, $\rho$ is undetermined.
- If a party does not meet an explicit, inverted burden on $\rho$, the complement $\neg \rho$ is assumed.
- E.g. If a doctor does not satisfy the burden of proving his non-negligence, his negligence is assumed.
  - Prakken and Sartor 2011.
Thanks for your attention.

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