Consequentialism, Menu Independence and Principled Choice

Nicholas Baigent
Institute of Public Economics,
Graz University, Austria

nickbaigent@waitrose.com

(Work in Progress)

Consequentialism:	Anscombe (1958), ethics Hammond (1977), rationality Suzumura-Xu (2000)
Menu Independence:	Arrow (1959) Sen (1997)
Principled	deontic logic?

X
finite set of at least 3 alternatives/consequences

A choice function C on X determines a non empty selection from each non empty subset of X

$C(S)$ - choice from S:

Contractions and Menu Independence

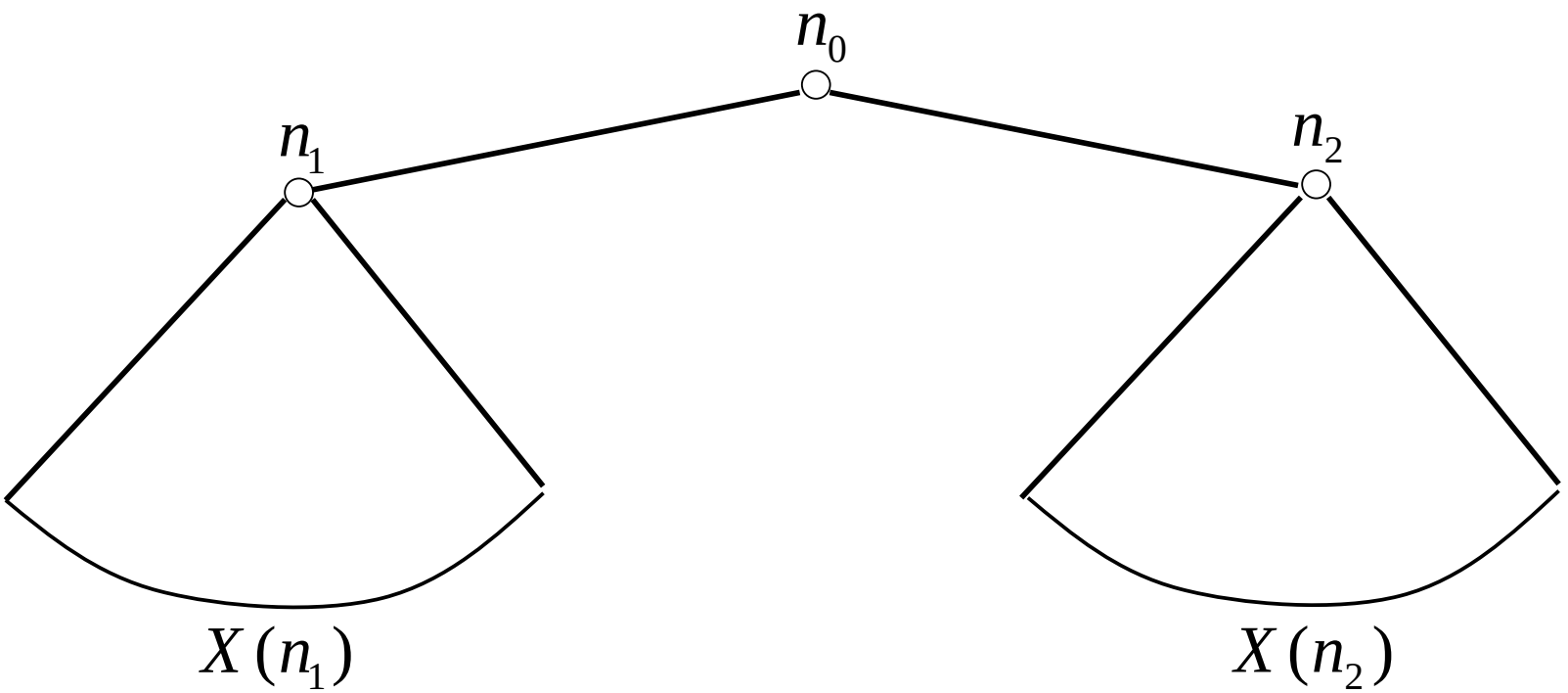
$$S \subseteq T$$

Contraction

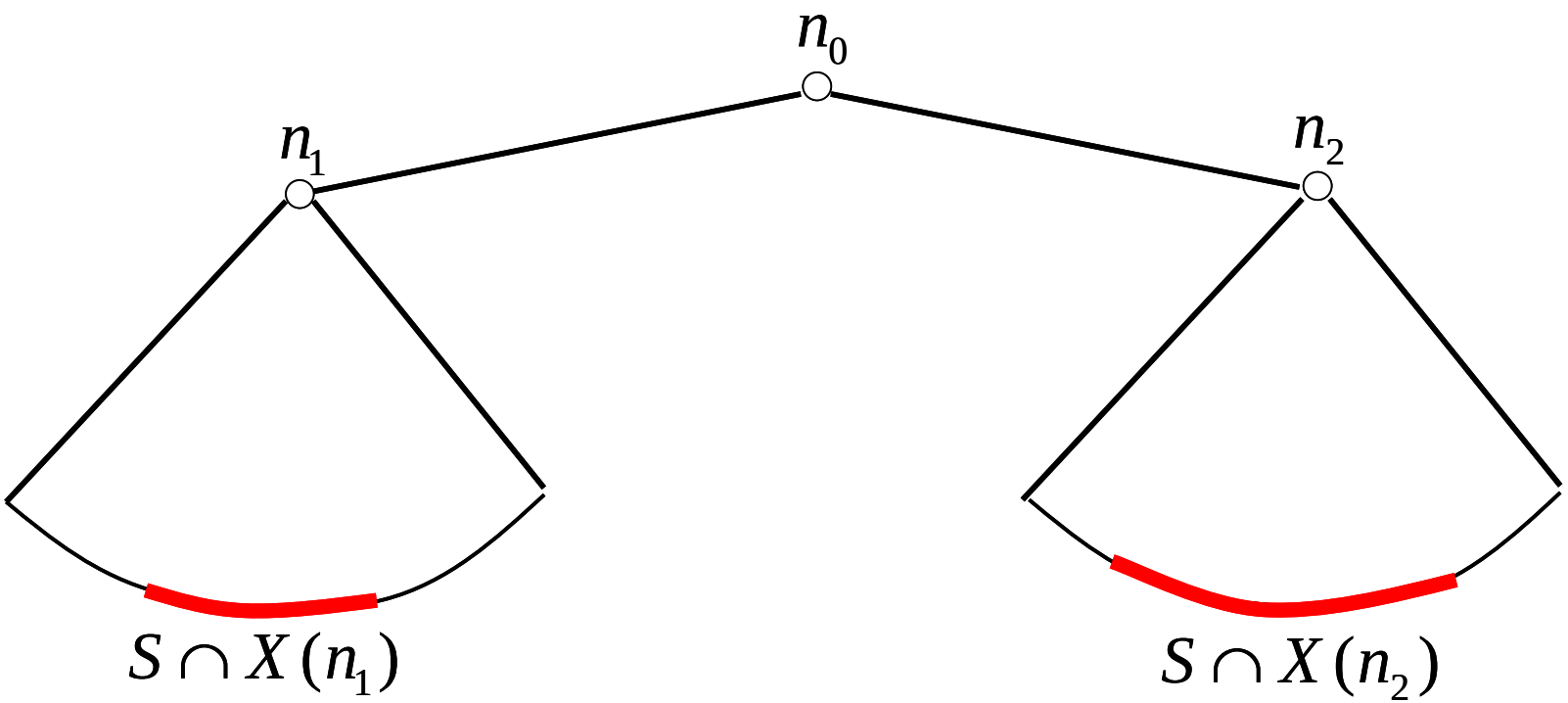
A choice function has
Arrow's (Menu Independence) property
iff:

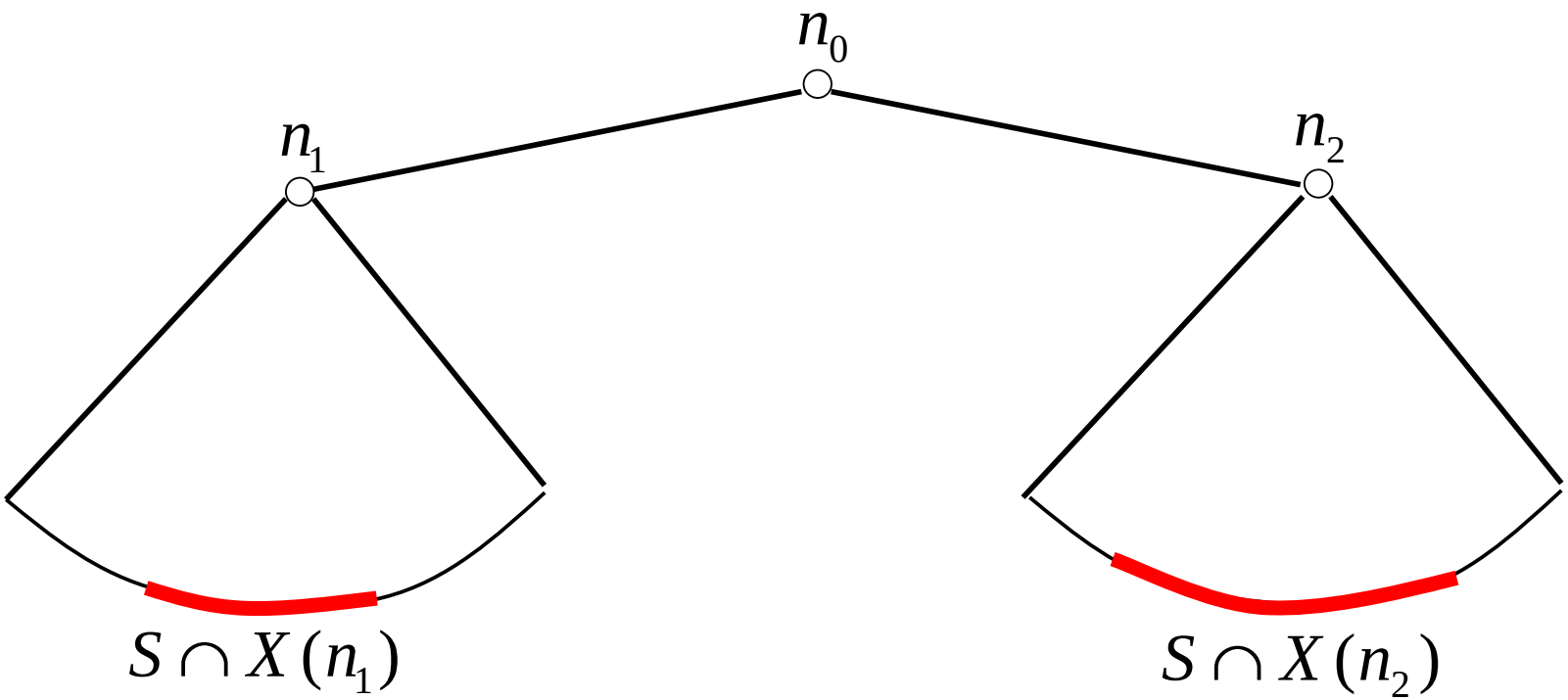
Pre contraction choices, if any, are the only post contraction choices

2 stage simple decision tree – externally imposed



2 stage choice from S





$$X(n_i) \cap C(S) = C\left(S \cap X(n_i)\right)$$

A choice function is (Hammond)

Consequentialist

iff

$$X(n_i) \cap C(S) = C\left(S \cap X(n_i)\right)$$

given LHS non emptiness

all $S \in 2^X \setminus \varnothing$, all 2 stage trees

Theorem (Hammond 1977):

A choice function is **Consequentialist** iff it has Arrow's **MI** property.

Such a choice function will therefore be called a **MIC** choice function!

Extended Alternatives

(x, S)

Getting x from S

Extended Preference

$$(x, S) \succeq (y, T)$$

Getting x from S is at least as good as getting y from T

x is **EP-greatest** in S iff

$$(x, S) \succeq (y, S)$$

all x, all S

Set of all EP-greatest alternatives in S

$$G(S, \succeq)$$

C has an **EP Rationalization**

iff

$$C(S) = G(S, \succeq),$$

$$\text{for all } S \in 2^X / \emptyset$$

$\succeq$

is **MIC** iff

$$(x,S) \succeq (y,S) \Leftrightarrow (x,T) \succeq (y,T)$$

all $S,T \in 2^X / \emptyset$ and $x, y \in S \cap T$

Suzumura and Xu (2000)

Sen (1997)

A choice function is

externally MI

iff

it has a MIC EP-Rationalization

Possible generalization (?)

MI/Consequentialism depends on being induced from MI/Consequentialist propositions on consequences!

Results:

- all choice functions are EP-Rat.
- all selective choice functions are non uniquely EP-Rat.
- all selective choice functions have a non MIC EP-Rat.

Principled Choice

- honesty
- integrity
- duty
- honorable

… **preferences about actions not irrational**

Actions determine outcomes

$$\mu : A \rightarrow X$$

$$|A| \geq |X|$$

$$\mu(A) = X$$

"technology" of outcome choice

Preferences on actions

aQb

act a is at least as good as act b

$aP(Q)b$ & $aI(Q)b$

Assume Q is a complete & acyclic

$$\mu(B) = S$$

x “chosen” from S iff there exists a Q-Greatest action a in B that gives x

$$\mu(a) = x$$

May not be well defined!

Example

$$\mu(B) = \mu(B') = S$$

b uniquely Q-max in B

b' uniquely Q-max in B'

$$\mu(b) \neq \mu(b')$$

$$\mu(B) = \mu(B') = S$$

b uniquely Q-max in B

b' uniquely Q-max in B'

$$\mu(b) \neq \mu(b')$$

$$C(S) \neq C(S)$$

If

$$\mu(a) \neq \mu(b) = \mu(b')$$

then

$$bQa \Leftrightarrow b'Qa$$

Q respects output equivalence

Theorem

Respecting outcome equivalence is necessary and sufficient for a well defined choice function

AOB!

- Principled choice and EP’s?
- Pref’s on actions and outcomes?
- Principled choice without choice functions on outcomes?
- Preference change!