Package ‘EpistemicGameTheory’

May 12, 2017

Type Package
Title Constructing an Epistemic Model for the Games with Two Players
Version 0.1.2
Author Bilge Baser
Maintainer Bilge Baser <bilge.baser@msgsu.edu.tr>
Imports stats,utils
Depends lpSolve
Description Constructing an epistemic model such that, for every player i and for every choice c(i) which is optimal, there is one type that expresses common belief in rationality.
License GPL-3
LazyData TRUE
RoxygenNote 6.0.1
Suggests testthat
NeedsCompilation no
Repository CRAN
Date/Publication 2017-05-12 11:13:59 UTC

R topics documented:
esdc ................................................................. 2
type ............................................................... 3

Index 4
esdc

Eliminating strictly dominated choices

Description
This function eliminates strictly dominated choices.

Usage
esdc(n, m, A, choices.A, B, choices.B, iteration)

Arguments
n an integer representing the number of choices of player 1
m an integer representing the number of choices of player 2
A an nxm matrix representing the payoff matrix of player 1
choices.A a vector of length n representing the names of player 1’s choices
B an nxm matrix representing the payoff matrix of player 2
choices.B a vector of length m representing the names of player 2’s choices
iteration an integer representing the iteration number of algorithm

Details
This function works for the games with two players.

Value
The reduced matrices of players’ that are obtained after eliminating strictly dominated choices

Author(s)
Bilge Baser

Examples
a=4
b=4
pay.A=matrix(c(0,3,2,1,4,0,2,1,4,3,0,1,4,3,2,0),4,4)
ch.A=c("Blue","Green","Red","Yellow")
pay.B=matrix(c(5,4,4,4,3,5,3,3,2,2,5,2,1,1,1,5),4,4)
ch.B=c("Blue","Green","Red","Yellow")
iter=5
**type**

*Finding types that express common belief in rationality for optimal choices*

**Description**

This function takes the reduced payoff matrices and finds out the probabilities for the types that expresses common belief in rationality for optimal choices.

**Usage**

```r
type(A, B, choices.A, choices.B)
```

**Arguments**

- `A`: an nxm matrix representing the reduced payoff matrix of player 1
- `B`: an nxm matrix representing the reduced payoff matrix of player 2
- `choices.A`: a vector of length n representing the names of player 1’s choices
- `choices.B`: a vector of length m representing the names of player 2’s choices

**Details**

This function works for the games with two players. It returns infeasible solution for the irrational choices.

**Value**

Probabilities of the types that expresses common belief in rationality for optimal choices

**Author(s)**

Bilge Baser

**See Also**

`lp`

**Examples**

```r
Ar=matrix(c(0,3,2,4,0,2,4,3,8),3,3)
choices.Ar=c("Blue","Green","Red")
Br=matrix(c(5,4,3,5,3,2,2,5),3,3)
choices.Br=c("Blue","Green","Red")
type(Ar,Br,choices.Ar,choices.Br)
```
Index

esdc, 2

type, 3