Package ‘EpistemicGameTheory’

October 12, 2022

Type Package
Title Constructing an Epistemic Model for the Games with Two Players
Version 0.1.2
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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

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**esdc**

*Eliminating strictly dominated choices*

**Description**
This function eliminates strictly dominated choices.

**Usage**

```r
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**

```r
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
```
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

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

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