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【 】 , , , Nash ,
【Keywords】 game theory, prisoner's dilemma, centipede game,
Nash equilibrium, backward induction

I.

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1870

S. Jevons, K. Menger,

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L. Walras

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II.

Harsanyi(1977)

. 1950

preference
가
descriptive
가
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. J. von Neumann

O. Morgenstern(1944), L. Savage(1954)

가
uncertainty risk

Bayes

Bayes

가

(Harsanyi 1953, 1955).

가

가

strategic behavior

. J. von Neumann O. Morgenstern(1944)

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”(Theory of Games and

Economic Behavior)

가

III.

cooperative game

non-cooperative game

가

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extensive form game

1) normal form game

1.

2)

, 가 $N=\{1,2, \dots, n\}$, $i=1,2, \dots, n$ S_i i
 $u_i(s_1, s_2, \dots, s_n)$

1 2가 (H) (T)
 가
 2가 1 1 ,
 1 1 1 .
 $\{1,2\}$, $\{H, T\}$,

$$u_1(H,H)=u_1(T,T)=u_2(H,T)=u_2(T,H)=1,$$

$$u_2(H,H)=u_2(T,T)=u_1(H,T)=u_1(T,H)=-1$$

1)

Kreps(1990) p.355

D.

2) (static game), (simultaneous move game), (matrix game)

	H	T
H	1, -1	-1, 1
T	-1, 1	1, -1

H T H T 1 ,
 H T 2 .
 가 1 , 가 2
 . 가 (H)
 1 1 2 -1 .
 . 가 0
 . 가

가

prisoner's dilemma

	C	D
C	2, 2	0, 3
D	3, 0	1, 1

가

(C)	(D)		
(C, C) 가	(1, 1).	(2, 2)	(D, D)
가	(C)	가	(D)
(0),			(3).

3

가

.3)

가

가

가

C,

D

D

가?

D

3) D
(dominant strategy)

가

가?

Battle of sexes

(1) (2)가 (F) (C)

	F	C
F	2, 1	0, 0
C	0, 0	1, 2

가?

F F
C C

Nash(1950)

가

가

Nash

Nash

가

(F, F),

가

Nash

(C, C)

4) 가 (F, F)
 가
 (C, F)
 F C F

Nash
 $(s_1^*, s_2^*, \dots, s_n^*)$ Nash
 s_i S_i , i

$u_i(s_1^*, \dots, s_i^*, \dots, s_n^*) ? u_i(s_1^*, \dots, s_i, \dots, s_n^*)$

Nash(1950) 가
 Nash
 Nash
 Nash
 Nash
 Nash
 Nash
 Nash

4)

5)

1
 Nash

Nash H T 1/2

	A	B
X	1, 0	-100, 0
Y	0, 1	0, 0

Nash (X, A) X가
 B
 A Y
 Nash 가 Nash
 game of chicken

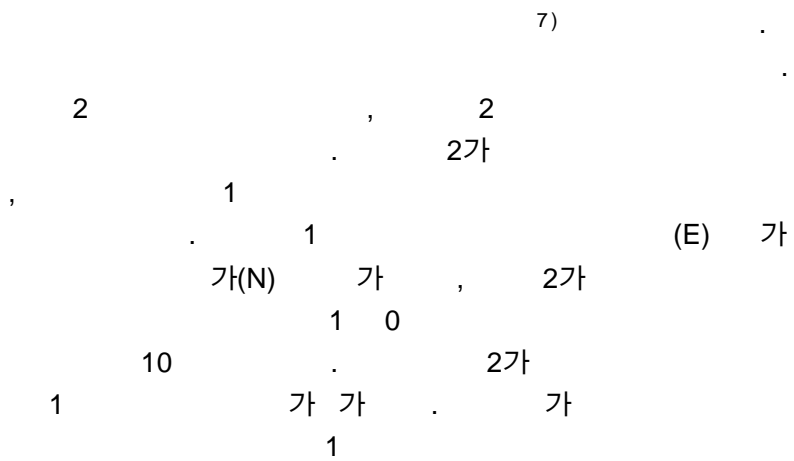
가 (B, B)
 (B) (C)
 (C, C)

	B	C
B	-10, -10	2, -2
C	-2, 2	0, 0

Nash (B, C) (C, B) .6)

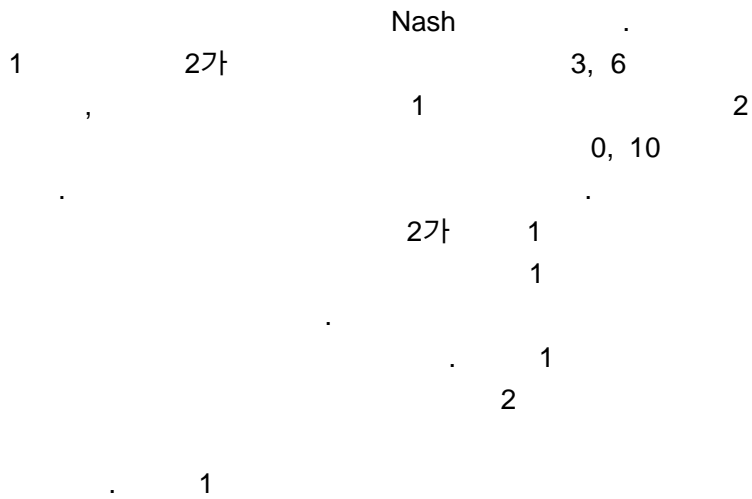
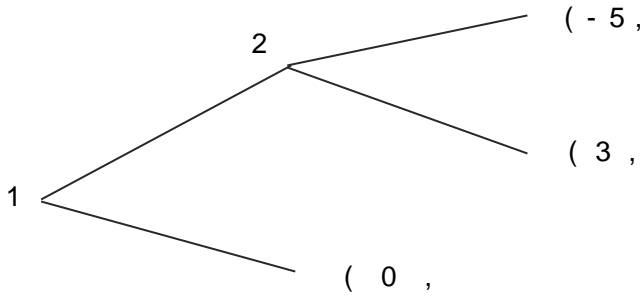
6)

2.



1 -5, 2 0
 1 3, 2 6

7) (dynamic game), (sequential game)

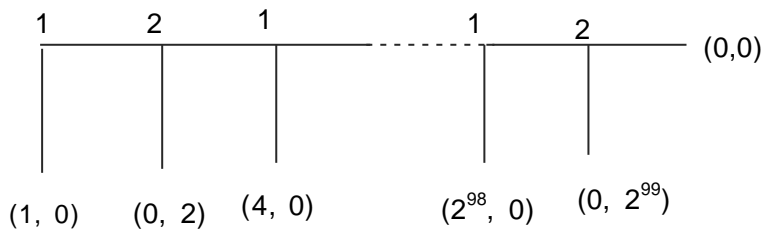
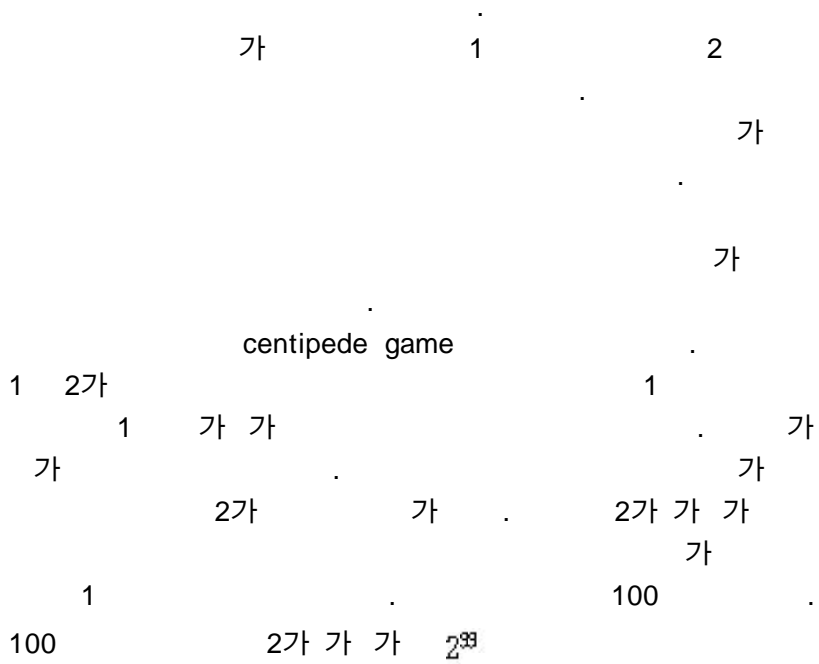


Nash
subgame perfect equilibrium

backward induction

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IV.

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Shubik(1970)

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Shubik

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,10)

,11)

10) W. Poundstone(1992) p.277

11) W. Camerer(2003)

Sally(1995)

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