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艾勒悖论再探——三结果决策的齐当别式表征：“好−坏”抑或“最好−最坏”？ *

(, 241000)

摘 要 3 (“ − ”, “ − ”)

关键词

分类号 B849:C91

1

(Carlin, 1996; Lu, 2016; , 2014; , , , 2009; , 2006; , , , 2010) (Li, Su, & Sun, 2010) (Li, 2003a, 2004; , 2005) (two-outcome) (Preferece reversal) (Choice reversal) (Li & Xie, 2006; Li, 2006; , 2005; , 2008; , 2010)

(Li, 1994) “ − ” “ − ”

A 100% 1000000

B 10% 5000000

: 2015−09−03

* (13YJC840021)

: , E-mail: lxpjq@126.com

89% ' 1000000 ẃ;
1% ' 0 ẃ;
J
A 11% ' 1000000 ẃ;
89% ' 0 ẃ;
B 10% ' 5000000 ẃ;
90% ' 0 ẃ;

ᵐ , ⁞ ǵ ẹ Ҥᵐ Ɑ ῏Ω(Independence axiom) Ỷ ṽ ɔ ᾳ̃ Ậ ɟ , ж Ꜳ Ỷ Җ Ɑ ῏Ω ɟ ◗ ж Ꜳ ᴥ ῎ Җ ǵ ˘ Ỷ ᵐ Y Ã̓ ה ל ɟ ئۆ ⁞ ṽ ᵐ Ỷ Ψ, A ' w Ờ "11% ' 1000000 ẃ, 89% ' 1000000 ẃ", Ά Bᵐ "89% ' 1000000 ẃ" ᵐ Ã̓ . ɔ Ђ J Ỷ ṽ ɟ ǵ Ɑ ῏Ω, ж Ꜳ ئۆ Ξ Ỷ ᵐ ᴥ ɟ ⁞ (Allais, 1953) , ئۆ ᵐ ṽ ɔ Җ A, ئۆ J ṽ ɔ Җ B ɟ ˜ , . ´ ɔ ṽ , Ύ Ɑ ῏Ω ε ⁞ (Birnbaum, 2007; Weber, 2008) ɟ

, ⁞ ᾳ̈ ى ⁀ ᵐ Ɑ ῏Ω Ỷ ṽ ɟ ῴ , ᵐ Ƀ̄ є Ỷ ṽ , ᾳ̈ ى Ẻ τ ɟ Ύ ᾳ̈ ى ܫ є Ỷ ῍Η ε ῎ ς Ψ ئۆ ⁞ (Li, 1993, 1994; , 2001) w ܫ w ⁞ ṽ ε ݘ ɔ (Li & Adams, 1995; , , , 2000) ɟ , ⁞ ئۆ Ψ Ә ε ᾳ̈ ى ʖ ʄ (Li, 2001, 2003b; Li, Taplin, & Zhang, 2007; , , 2007) ɟ З ʄ ᾳ̈ ; ⁞ Ẻ Ђ τ ɟ

ᾳ̈ ; ⁞ , (2001) Ό, ж Ꜳ φ w ئۆ Ξ ṽ ɔ ᴥ ῎ᵐ ǵ ε ж Ꜳ ᵐ Ỷ ṽ , Җ Ψ 89% 1000000 ẃ , 10% 5000000 ẃ Ә ε , 1% 0 ẃ Ә ε سج , ˜ w ɞ سج Ξ Y ⁞ ᵐ Ỷ ṽ , Ҥ ɔ φ ̓ , ˜ ئۆ سج ɔ , ъ A; ئۆ J Ỷ ṽ ɔ , ᾳ̃ سج φ ̓ , ъ ئۆ ɔ Ђ B ɟ ,

(2001) Ђ Ђ Ậ ɟ Ӂ , è ῦ ' w ה , ̓ ݘ Ҥ ᾳ̈ ى, (2001) ⁞ ᵐ ṽ ɔ Ỷ Ոᵐ ' , ж Ꜳ ' Җ ج Ҥ" " "89% 1000000 ẃ"Ά"10% 5000000 ẃ"´ ئۆᵐ , Ҥ" ῎ " "1% 0 ẃ"Ә ε سج , ئۆᵐ " –سج" " – سج" ɔ Ỷ ɟ ʖ ئۆ̓ ܫ є Ỷ ɔ , (2000) ئۆᵐ w ⁞ ṽ ε ݘ Ψ . ε ж Ꜳ " –سج" , " – سج" ɟ ǵ ݘ Ҥ ᾳ̈ ى, ж Ꜳ Ỷ (2001) " – سج" ̀Ω ' ئى Ђ ж Ꜳ Ỷ , ⁀ ' ئى Ђ ж Ꜳ Ỷ ᵐ ᾳ̈ ى Ẻ τ, ῎ c ᾳ̇ Ҥ ̉ ᾳ̈ ى Җ ă ⁞ ᵐ Ỷ ṽ , ᾳ̇ Ҥ ж Ꜳ̉ ᾳ̈ ى ı Ђᵐ . : Ɑ ῏Ω (The law of parsimony), ᵐ ᵐ ε Ҥ ᾳ̈ ى Ҕ † φᵐ (, , 2007; Ở , 2010) ɟ

ອ , ᾳ̈ ى Ỷ , (2009) ̀Ο ئۆ ˜ , ῎ Җ c c Ỷ ᵉ, Җ ´ Ỷ ᵉ Ά ᵉ, ǵ ئۆ ė ó ṽ (ς ᴸ ṽ) ˜ ݥ Ȉ ó ṽ , ъ О ئىא ᾳ̈ ى ж Ꜳ Ỷ , ̓ ݥ ᾳ̈ ى ̀Ω ̀Ω ɟ (2009) ה , ̉ ė ó ṽ ۸ Ȉ ó ṽ ´ ó ṽ ȳ ̀Ω ɟ , ᵐ ئۆᵐ ῍Ω ῎̓ ᵉ Ỷ ṽ ɔ Ђ , Ӂ ч ⁞ ṽ Ƀ̄ Ђ є ' Ỷ ṽ ɔ ɟ ˜ , Ỷ ئۆ Ỷ ᴥ (Preference elicitation) ɔ ئۆ ɟ , ῎̓ Ỷ ᴥ Ά ɔ Ỷ ' ῎ ̓ (Baas & Kwakernaak, 1977; Weber, 2008) ɟ ئۆ З Ψ, ئۆ Ỷ ئى ẹ Ψᵐ Y Ә ε ẹ ᴥ , ῏Ω ئۆ Ξ Y ᴥ ┘ ɔ ᵐ Y ᵋ ˜ ɟ ᾳ̈ ى ' ئۆئى طمى; Ђ (Li & Xie, 2006) ɟ σ طمى; ᾳ̈ ى ı ⁞ Ә Ό ̓

ᵉ ɟ φ, Њ ᾳ ى є Ỷ ˜m , ẇ ש ئ ẻ ó ѷ ˩ ˊ ó ѷ Ξ , Ύ طمی ; ⁝ Т Ə , غ ﻫ ᾳ ; ⁝ Ő ε ɟ 3 ɟ 1 ẇ (2001) ε نح , ⁝ m Ỷ ѷ , مخ "–سح" Ҕ , ئ Υ ó ѷ ˜ مخ Ỉ ó ѷ , ъ ᾳ ; ⁝ نحЊ"–سح" "–سح" J ẇ˩ ǚ , Т ˊ ó ѷ ئ ⁝ ѷ ɔ, ᾳ m Ỷ ѷ є ᵉỶ ѷ ɔ ı Ẻ Ҕ †; 2 Њ 1"–سح" Ὼ Ά (2001) ئ , m Υ ԋ(˛ ẃ)˩m Υ (л ẃ) ᾳ ᵉ, 1 Ψ ẇ ש 1 Ά (2001) ı (The magnitude effect, ҫ Ə ᵉ) ΐ Ő Ђ ; 3 Ὼ ئ ˥ 2 ᵉ ϧ نح ɔ, Ỷ طمی طمی II ε طمی, ᾳ ى ⁝ Ὼ ɟ

2 1

2.1

نحЊ ᾳ ى, (1) (2001)نحЊ ẻ ó ѷ ⁝ Ὼ; (2)نحЊ (2009) Ὸ ˊ ó ѷ , ᾳ ى ⁝ Ὼ, φ Ά ẻ ó ѷ Ὼ ; (3) ǚ ᾳ نحЊ"–سح" ˩ "–سح" , ᾳ ى ⁝ m Ỷ ѷ Ὼ, ъ ᾳ ; є Ỷ ɟ

2.2

ɔ , ئ ⁝ ѷ ˜ ẻ ó ѷ Ά Ỉ ó ѷ , ъ ε ẻ ó ѷ Ά ˊ ó ѷ Ὼ ẇ نح ; Ά , ε Ђ نحЊ"–سح" Ά"–سح" , ᾳ ى Ὼ ı ئ˩ ᾳ, ئ (2001) Ɑ نح ɔ مخ m Υ ⁝ m Ỷ ѷ ; ئ ẹ˜ نحЊ"–سح" "–سح" ẻ ó ѷ Ά Ỉ ó ѷ ɟ ẹ Ψ ئ"–سح" ó ѷ ɔ, ᴬ

(2000) , ⁝ m ѷ Ψ ɔ Њ" "Ύ ئ Ỷ ᵉɔ "89% 1000000 ẃ" Ά "10% 5000000 ẃ" Ξ Υ Ə ε" " , ɔ Њ" " "Ỷ ئ ᵉɔ Ά J "1% 0 ẃ"Ə ε سح , ẻ ó ѷ ˩ Ỉ ó ѷ ɟ ƃ , Њ (2009) ˊ ó ѷ Ҕ † , ẇ Ỉ ó ѷ Ỷ Ə , Ἁ ; \ , ẇ Ἁ ѷ Ў Ə ɟ ئ ɔ Њ ˊ ɟ ⁝ m Ỷ ѷ Ά J Ỷ ѷ ɟ ⁝ m Ỷ ѷ ɔ 2("–سح" ; "–سح")×2(ó ѷ ẻ ó ѷ ; ˊ ó ѷ) ˊ ɟ ẹ Ψ ε , ó ѷ ε Ỉ ɟ ⁝ J Ỷ ѷ ɔ ẻ ó ѷ Ά ˊ ó ѷ Ỉ ɟ

2.3

2.3.1

ɞ Ã 223 ж ϧ Ά Ђ , ẹ Ψ 166 ж, 57 ж, ج Ὸ Ғ Ỷ ɟ

2.3.2

ẇ \ ɟẆ ж i , ˜ m Υ ǚ ᾳ є ѷ Ψ ѷ m (1) ⁝ m Ỷ ѷ +نحЊ"–سح" ó ѷ +نحЊ "–سح" Ỉ ó ѷ ; (2) ⁝ m Ỷ ѷ +نحЊ"–سح" ó ѷ +نح Њ"–سح" Ỉ ó ѷ ; (3) ⁝ J Ỷ ѷ +نحЊ"–سح" ó ѷ + Ỉ ó ѷ ɟ

2.3.3

ئ ' ẇ Ў I , жm ' , ζ m ה ɟ ◆' ئ ɔ ɟ ɟ ئ 8 min ˆ ɟ

2.4

SPSS 11.5 ǚ (˜)

1 6

	A	B	A	B	A	B	A	B	C	D	C	D
A (C)	30	16	37	9	22	15	30	7	6	25	15	16
B (D)	16	15	17	14	18	9	23	4	5	46	6	45
χ^2 a/	1.43 /0.14		4.64* c/0.27		0.35 /0.07		0.19/0.05		1.51/0.14		13.57**/0.41	
χ^2 b	2.20		8.12**		0.06		0.25		5.90*		17.61**	

a ε χ^2 , = 1; b ε 1:1 χ^2 , = 1; c ε χ^2; * < 0.05, ** < 0.01

(2001)

(2001)

(“ —” $\chi^2 = 2.92$, = 1, = 0.09; “ — ” $\chi^2 = 1.56$, = 1, = 0.21); ($\chi^2 = 4.88$, = 1, = 0.03);

“ —” “ — ”,

(“ —” vs. $\chi^2 = 7.65$, = 1, = 0.06, = 0.22; “ — ” vs. $\chi^2 = 5.78$, = 1, = 0.016, = 0.20)

100%,

89% D

“ —”

“ —”

“ — ”

“ —”

“ — ”

2.5

“ — ”

(2001) (2001)

“ — ”

(2001)

1 ≈4.6

(2001)

3 2

3.1

(1) e ; (2) m “ – ”

3.2

e (vs.) , e ;

Ỷ э, ᵉ ε л ẃ , ئ̆
ᵐ Ỷ Ѷ э ج Ό Ђ Ч ⁝ Ɑ
(" –سح" $\chi^2 = 20.25$, = 1, = 0.00; "
– سح" $\chi^2 = 3.90$, = 1, = 0.048), ئ̆
J Ỷ Ѷ э T Ό Ђ Ч ⁝ Ɑ
($\chi^2 = 21.78$, = 1, = 0.00), ̏ c ,
" –سح" " – سح", Ѭ Ά J Ỷ
Ѷ ئ̆ , Ђ Ɑ Ώ("
–سح" vs. J Ỷ Ѷ $\chi^2 = 42.02$, = 1, <
0.01, = 0.38; " – سح" vs. J Ỷ Ѷ
$\chi^2 = 21.72$, = 1, < 0.01, = 0.29) ɟ ᵉ ε ˛
ẃ , ئ̆ ᵐ Ỷ Ѷ э ج Ό Ч
⁝ Ɑ (" –سح" $\chi^2 = 0.57$, = 1,
= 0.45; " – سح" $\chi^2 = 0.81$, = 1, =
0.37), Ж ئ̆ J Ỷ Ѷ э Ώ Ό ($\chi^2 = 56.18$, =
1, < 0.01), ̏ , Ά 1 Ч,
Ђ Ɑ Ώ, " –سح"
" – سح", Ѭ Ά J Ỷ Ѷ
ج ئ̆ (" –سح" vs. J Ỷ Ѷ
$\chi^2 = 25.81$, = 1, < 0.01, = 0.30; " – سح"
vs. J Ỷ Ѷ $\chi^2 = 23.24$, = 1, < 0.01, =
0.30) ɟ φ , ئ̆ ᵐ Ỷ Ѷ э, л ẃ Ά
˛ ẃ ˘ " –سح" Ά " – سح" Ỷ
Ũ Ѣ ᵐ , Ύ ה T ε ´ ئ̆
ᵐ ה , ˘ ẫ ' ẃ´ ɟ´
, ئ̆ л ẃ Ά ˛ ẃ Ѷ э
ئ̆ ($\chi^2 = 17.01$, = 1, < 0.01, =
0.18), ئ̆ J Ѷ э T ($\chi^2 = 5.64$, = 1, <
0.05, = 0.14), Ό Ђ ɟ
ئ̆ ó Ѷ Ὼ э, Ά 1 Ч,
ئ̆ л ẃ ˛ ẃ ᵉ э, نـ Ѣ " –سح"
´ ó Ѷ Ő ᵐ ⁝ Ξ Ỷ
ΌЂ ɟ Ж Ά 1 , ئ̆
ᵉ э, نـ Ѣ " –سح" ẻ ó Ѷ
Ὼ , Ⅵ Ό ᵉ ﬤ Ὼ
э ╗ † ɟ نـ Ѣ " – سح" ó Ѷ
Ὼ ς , ᵉ ε л ẃ , نـ Ѣ
" – سح" ó Ѷ Ж Ѣ " –سح"
, Ж ئ̆ ˛ ẃ ᵉ э Ώ Ό Ч
Ὼ ɟ

3.5

(2001) ئ̆ ậ ى ; ⁝
Ђ , Ђ ى , Ж
ئ̆ ђ Ψ Ό Ά ⁝ Ɑ Ч

ɟ ئ̆ л ẃ ᵉ Ỷ Ѷ э Ώ Ό
Ђ, Ύ نـ Ѣ ă w ẁ نـ Ѣ
ẻ ó Ѷ ´ ó Ѷ , ج
Ὼ, ậ ى Ч ⁝ Ɑ
' ɟ
ẫ ῴ ε , ´ 1 Ά 2 ' w
Ό э ε , Ж Ặ ̏ طم
ɟ J ᵐ , c ئ̆
; , ; ă ̏ ' ;
J, Ψ Ђ ậ ى Ὼ
, Ж Ѣ Ѣ ▌ , ئ̆ᵐ З Ỷ
Ѷ э ¯ Ђ ậ ى
ж Ỷ ε , ى Ά
ئ̆ Ặ ɟ طمي ; Ỷ
Ѣ , ' w ▌ ╥
Y Ά Ặ ɟ
φ, ϴ ; ɟ

4 3

4.1

طمي ; ⁝ Ỷ
ı ' w ẫ 2 Ψ Ч ɟ ậ
ϴ ; Ỷ , ó ậ Ѷ
Ά Ỷ Ặ ɟ

4.2

Ά ﬤ w ẁ Ά
2 Ч ɟ ┘ ậ ζ ئ̆ Ѣ ϴ ; Ǐ ó
Ѷ ˛ ˘ Ђ , ᵐ ﬤ ˘ ɟ

4.3

4.3.1

373 ˜ ﬤ Ά Ђ , ẹ Ψ
207 ж, 163 ж, سحـ ậ 3 ж; J
259 ж, є 111 ж, سحـ 3
ж; ج Ό Ғ Ỷ ɟ

4.3.2

Ũ 4 , Ỷ ɺ ó ậ Ѷ
ɟ Ѭ Ũ ậ (1) л ẃ ⁝
ᵐ Ỷ Ѷ + " – سح" ẻ ó Ѷ +
⁝ J Ỷ Ѷ +" –سح" ẻ ó Ѷ ;
(2) л ẃ ⁝ ᵐ Ỷ Ѷ + " –سح"
ẻ ó Ѷ ; (3) ˛ ẃ ⁝ ᵐ Ỷ Ѷ +
" – سح" ẻ ó Ѷ + ⁝ J Ỷ
Ѷ + " –سح" ẻ ó Ѷ ; (4) ˛ ẃ ⁝
ᵐ Ỷ Ѷ + " –سح" ẻ ó Ѷ ;

ɯ (1) Ψ ᵐ Ỷ ѷ ᵐ ѷ
ɛ ʡ , ẹ Ẻ Ɩ ; , ẹ ѷ Ẻ Ɩ Ά φ
Կ , ̄ Ẻ Ɩ , Ặ Ỉ ל

A 100% 1 ; B 10%
5 , 89% 1 , 1% 0 ;
(1) ,
(
“ A” “
B” 7)
(2) “100% 1 ”
“10% 5 ” ,
,
, (
“ ” “ ” 7
,)
(3) “100% 1 ”
“1% 0 ” ,
,
,

4.3.3

2, ɛ 10~20 min ɟ

4.4

, Є Җ A ɛ 1 ΰ̃ ,
ɛ 4 ΰ̃ , Җ B ɛ 7 ΰ̃ , ẹ ,
˜ 6 ѷ ɔ Ỷ ᵋ ˜ ɯ Ỷ
ᵋ ˜ Ά ᵉ 4 ╥ t Њ
4 ɟ
⁞ ѷ ɔ ᵐ ɞ J Ỷ ѷ

ئۆ J Ỷ Ѷ э Т ɟ Ӂ ᵉ ɛ ˛ ẃ , ئۆ ᵐ Ỷ Ѷ э Ὼ ﺤﻧ Ҥ" –سج" ó Ѷ , Ӂ ئۆ J Ỷ Ѷ э Ὼ Ὼ ﮐ ɟ ӭ , ς , ئۆᵐ З Ỷ Ѷ э , ó Ѷ ' Ὸ Ђᵐ ̉ Y , ع ˜ ᵐ Y Ỷ Ẻ Ὼ ɟ ς ○ Ђ 1 Ά 2 Ψ [redacted] ᴸ ΰ ɟ

5

5.1

ئۆ φ ῴ, (2001) ﺤﻧ Ҥ ẻ ó Ѷ ẃ Ѡ" – سج" ⁝ Ђ , Ђ ɟ Ὼ ئۆ ﺤﻧ э ᵐ Ѳ ἇ Ђ ἀ̣ ᵉ (˛ ẃ ɞ ˛ ẃ ξ л ˛ ẃ) Ά Ỷ طمی (Ά), ẻ ó Ѷ Ά ´ ó Ѷ , ئۆ ᵉ م ᅥ طمی э , ئۆ Ѷ Ѳ ; Őᵐ Ђ یی ɟ ع , ⁝ ἀ̣ Ő Ђ ɛ Ẅ ΰ ɟ ӭ , ъ یی S , ⁝ ж (Certainty effect) ⁝ (Allais, 1997), Т π Ὸ ҥ Ţ Ψ Ţ ҥ ˆ ⁝ (Kahneman & Tversky, 1979) ɟ Ӂ ъ , ἀ̣ یی ج [redacted] ɓ ɟ W, ئۆ Ά ἀ̣ یی φ , (2001) ъ ɛ ᵐ ᅥ ἀ̣ یی Ὼ , ה ἀ̣ یی [redacted] ɓ ɟ Т ה Ч ɓ † ɟ 1 ɞ 2 Ψ є ἀ̣ ᵉ ; ˜ ה , ئۆ ⁝ ᵐ Ỷ Ѷ э , " –سج" ; ´ ó Ѷ , ´ Ά ´ ἀ̣ یی φ ɛ 247:115, ´ Ά ´ φ ɛ 211:251, ῴ Ҥ˜ (χ^2 = 7.70, = 1, < 0.01, = 0.10); ئۆ Ѡ J Ỷ Ѷ э , ´ Ά ´ ⁝ ж φ ɛ 266:101, ´ Ά ´ ἀ̣ یی φ ɛ 282:85, J ئۆ (χ^2 = 1.84, = 1, >0.05, = 0.05) ɟ ẹ , ئۆ Ά ἀ̣ یی φ , 2 Ψ ⁝ Ѷ э Т ἀ̣ یی [redacted] ɓ ɟ ᵉ

Ỷ Ѷ ﮐ э , ع ئۆ ᵉ Ѷ э Ч , Ӂ , 2 ئۆ л ẃ ᅥ ˛ ẃ э Ч , Ὸ Ђ ɟ Ч ς ئۆ ẹ Ψ ה (Camerer, 1989; Fan, 2002; Hong & Waller, 1986) ɟ З ξ (Tversky & Kahneman, 1992) Ὸ ط ר J [ς ' , ς ъ ﮐ ᅥ э ɛ φ (Weber, 2008; , 2010)], Ӂ ἀ̣ یی Ђᵐ Ὼ ɟ φ , ъ یی Ὼ ъ یی S , ἀ̣ یی ج Ђ ɛ Ẅ ΰ ɟ

5.2

, " – " ´ є , ئۆ ˛ ẃ ɞ ˛ ẃ ɞ л ẃ є Y ᵉ ἀ̣ Ѡ Ά Ξ طمی ; ⁝ Ѷ э , ﺤﻧ Ҥ" –سج" ó Ѷ , ئۆ ´ ó Ѷ э Ẻ ᵐ Ὼ ɟ Ӂ ﺤﻧ Ҥ" – سج" ó Ѷ , Ὼ ᵉ л ẃ Ẻ Ὼ ɟ ع ъ یی Ỷ ᵐ Ὸ ה , ئۆ Ч ⁝ ᵐ Ỷ Ѷ є Ỷ ﺤﻧ Ҥ سج ɟ Ҥ ᵉ ɛ л ẃ ﺤﻧ Ҥ " – سج" Ὸ Ὼ э ' ẃ " –سج" э ɟ

5.3

ئۆ ἀ̣ ; , (2009) Ђ ẻ ó Ѷ Ά ´ ó Ѷ Ξ Ỷ Ὼ, ה طمی , ´ ó Ѷ ; ἀ̣ یی Ὼ, ẻ ó Ѷ Ὼ ئۆ طمی Ψ ئۆ Ὼ ɟ ئۆ Ψ, ´ 1 Ά 2 , ẻ ó Ѷ Ὼ , Ӂ ´ ó Ѷ Ὼᵐ Ẻ Ὼ ɟ ɓ , ئۆ 1 Ψ ẻ ó Ѷ Ὼ Ά (2001) Ψ ẻ ó Ѷ Ὼ ɛ ӑ ئۆ ъ ĩ , ẹ ᵉ ئۆ Ѡ ˛ ẃ Ѡ ẹ ѡ э , ' , ᵐ ع , σ J Ὼ ' ẻ ó Ѷ ɟ З ج , ´ ó Ѷ Ὼ ئۆ ⁝ Ѷ э

(2010)

2009)

5.4

6

(1)

(2)

(3)

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by the “new joint judging task” than by the “classical matching task” ;(3) find out whether the above conclusion could be replicated when the decision values varied and when the non-imposed decision situation was adopted;(4) revisit the Allais paradox as demonstrated by EDM.

Three studies were conducted and a total of 1129 participants were recruited for the research. Three different kinds of decision questionnaires were sent to the participants randomly in Study 1. One of them consisted of the first task of the Allais paradox + “classical matching task” + the “new joint judging task” and both of last two tasks were based on the “better-worse” representation; (2) Another of them consisted of the first task of the Allais paradox + “classical matching task” + the “new joint judging task” and both of last two tasks were based on the “best-worst” representation; (3) The third of them consisted of the second task of the Allais paradox + “classical judging task” + the “new joint judging task”. The magnitude of the decision value on the three questionnaires was ¥1000000. Two different decision values were used in Study 2, which were ¥10000 and ¥100000000 respectively. Otherwise, the design was identical to that in Study 1. Study 3 was similar to Study 2 except that the participants were not imposed to make their decision. They were asked to indicate the differences they saw on the judging task and “new joint judging task” in different ways. They indicated their choice and the differences they saw on a continuous axis similar to that used in Li and Xie (2006).

The results revealed that: (1) people used the “better-worse” representation in the decision with three possible outcomes in EDM; (2) the “new joint judging task” was more powerful than the “classical matching task” in testing the EDM on decision with three possible outcomes; (3) the above two conclusions were replicated when the decision values varied and the non-imposed decision situation was adopted; (4) the power of EDM in explaining the Allais paradox could be further strengthened.

The findings in this paper show that: (1) the EDM is powerful in describing the effects in decision with three possible outcomes, especially on the Allais paradox tasks; (2) the decision process on tasks with three possible outcomes as described by EDM is not parsimonious.

Key words the Allais paradox; the decision with three possible outcomes; the equate-to-differentiate model (EDM); the better-worse representing frame; the magnitude of the decision value