Pe ce & P Hc H
2008, 70 (7), 1314-1324
d : 10.3758/PP/70.7.1314

Detection of collision events on curved trajectories: Optical information from invariant rate-of-bearing change

RUI NI AND GEORGE J. ANDERSEN
U e H Ca a, R e Hde, Ca a

(& , 2001) (. .,
)
( ). , -
, .
- - .
, ,
. -
, . 3,
- - .
.

. .
.
,
,
.
(. ., , ,).
.
( ) .
2 , 40 2001, 42. % (1) , -
(, 2004). , (τ)
(. ., -
, 1 1
(, , & , 200 , 1).
, , , & , 1 , & τ , -
, 1 4). (& ,
1 0, , , , , & , 1 3,
. & , 1 4, & , 2004),
. (& , 1), (&
, , 2004), (& , 200 ,
( ). - , , & , 200 , , , &
, , 1 2, , 2003). (, 2004 ,
, . - 2004 , 200 , , , , & ,
2003, & , 200)
. 1 - (. ., -
(/ , / , , ,
, / , ,) . ,
/ ,
, & , 2004, - (. .,)
). , - (-

G. J. Andersen, andersen@ucr.edu

EXPERIMENT 1
Linear and Circular Trajectories

. - ¶( )1
())2 ( )) ( )2 ( )2 (( )2 (( )21 (2 1 (( ))-20() ¶ (. ())2 (2))2 (

d′

-

(*d′* ,)

(1 0).

d′

(◆ <

.0¶)

2.0 3.2¶ .

,

.

Bias. *β*

4 ( ) × 2 ( )

. *F*(3,21) = 0.

F(1,) = 0. 2) -

(◆ > .0¶). -

F(3,21) = 2.1,◆ > .0¶ .

EXPERIMENT 2

1,

d' ,
(1 0).
4.¶- ¶. ¶- , -

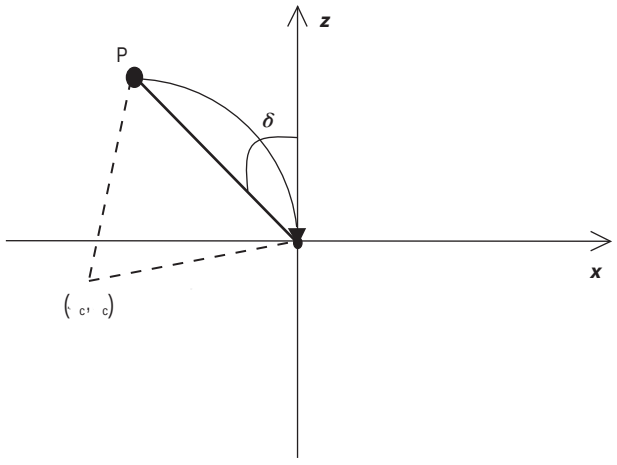
.

.
3.¶- ,
( )
2, 3, , , , 110-, 22¶-, 2¶¶-, 31¶-, 410-,
¶¶0- . 2.0- ,
0, 0, 2, ¶, , 110-, 22¶-, 2¶¶-,
31¶-, 410-, ¶¶0- , .

.

Bias. β
4 ( ) × ( )
. $F(3,21) = 4.$
($\epsilon < .0¶$). β

APPENDIX



( ) ( ) ,

, " - -

, δ . , ω

0 .

, = , + · (ω · + $_0$) (1)

, = , + · (ω · + $_0$). (2)

$$\delta = \quad ^{-1}\left(\right). \qquad (3)$$

- -

$$\dot{\delta} = \frac{d}{d}\delta = \frac{d}{d}\left[\quad ^{-}\left(\right)\right] = \frac{}{+} \cdot \frac{d}{d}\left(\right),$$

APPENDIX (