

Prof. Dr. Alfred Toth

Grundlagen einer trajektischen Randtheorie

1. In Toth (2025) hatten wir das vollständige System der $3^3 = 27$ ternären (triadisch-trichotomischen) semiotischen Relationen in Form von trajektischen Abbildungen der Form

$$T = (1, 2, 3) \mid (1, 2, 3) \text{ mit } \mid = R((1, 2, 3), (1, 2, 3))$$

dargestellt und die semiotischen Relationen nach dem Vorschlag Walthers für Zeichenklassen (vgl. Walther 1979, S. 79) in Kompositionen dyadischer Teilrelationen zerlegt

$$(3.x, 2.y, 1.z) = (3.x \rightarrow 2.y) \circ (2.y \rightarrow 1.z)$$

$$(z.1, y.2, x.3) = (z.1 \rightarrow y.2) \circ (y.2 \rightarrow x.3).$$

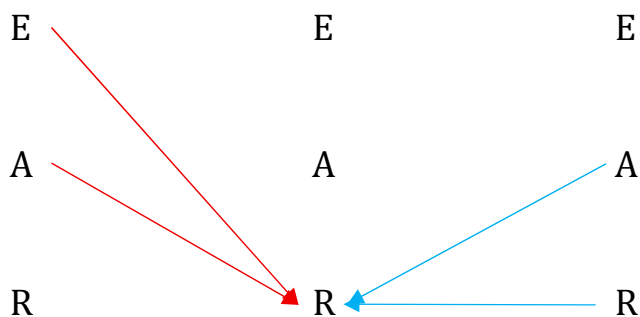
2. In der vorliegenden Arbeit benutzen wir die trajektische Abbildungstheorie als algebraische Grundlage einer ontischen Theorie der Ränder (Randtheorie). Die ontische Randrelation ist definiert durch (vgl. Toth 2015)

$$R^* = (Ad, Adj, Ex),$$

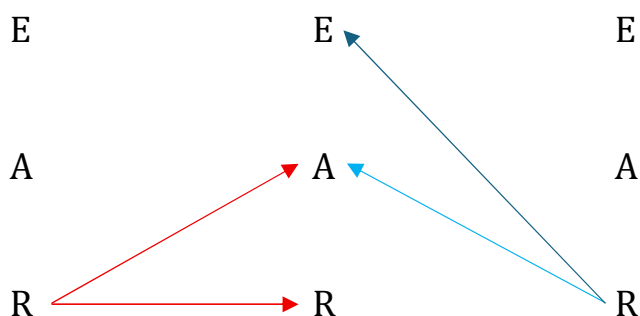
wofür wir aus technischen Gründen in der vorliegenden Arbeit $R^* = (A, R, E)$ schreiben.

1. Randrelation

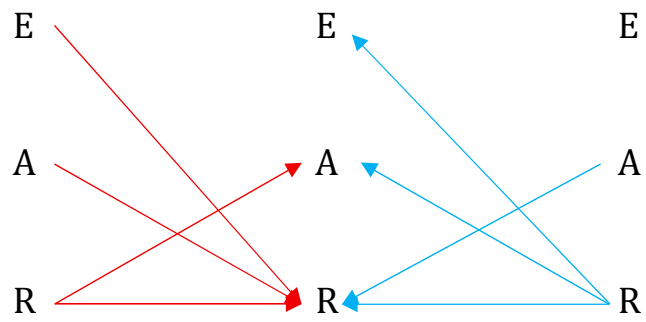
$$R^* = (E.R, A.R, R.R)$$



$$DR^* = (R.R, R.A, R.E)$$

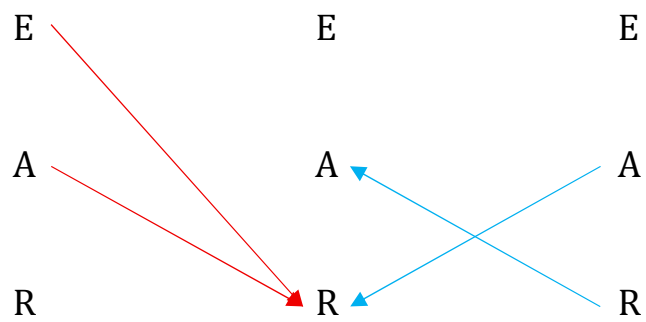


$$DS = [(E.R, A.R, R.R) \times (R.R, R.A, R.E)]$$

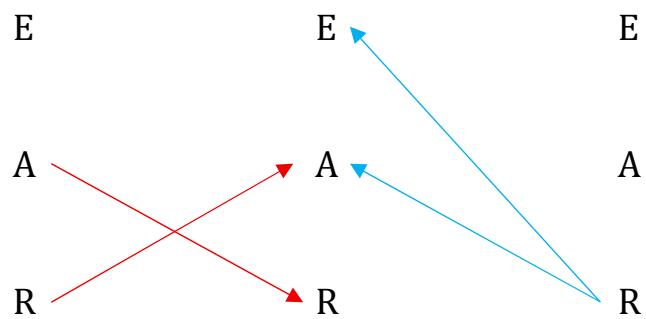


2. Randrelation

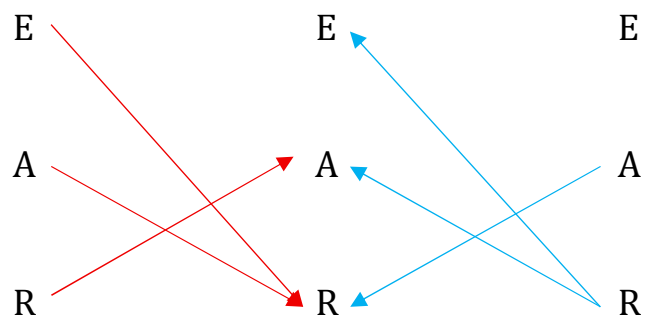
$$R^* = (E.R, A.R, R.A)$$



$$DR^* = (A.R, R.A, R.E)$$

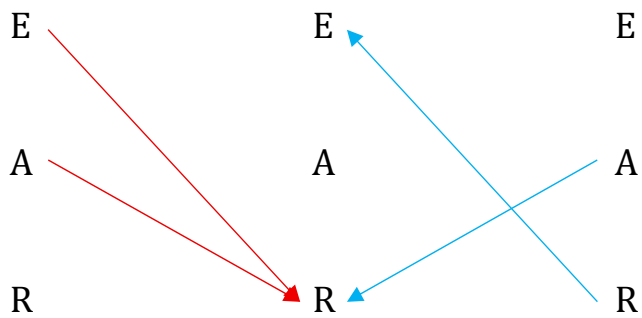


$$DS = [(E.R, A.R, R.A) \times (A.R, R.A, R.E)]$$

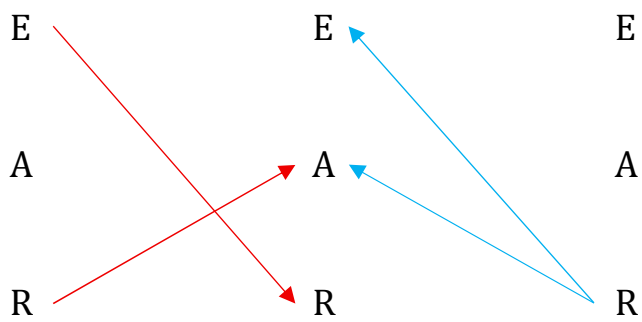


3. Randrelation

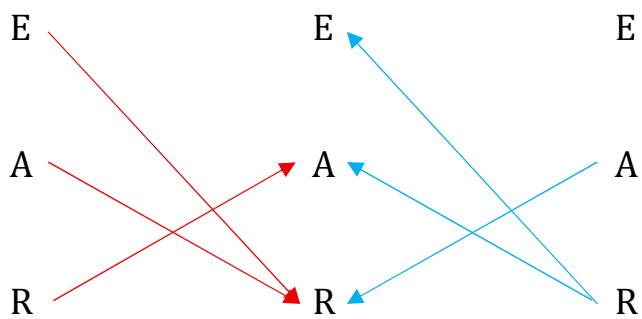
$$R^* = (E.R, A.R, R.E)$$



$$DR^* = (E.R, R.A, R.E)$$

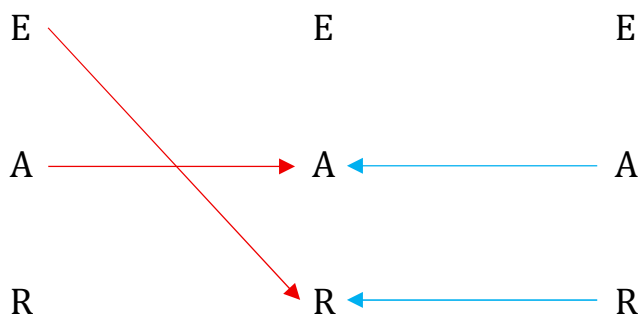


$$DS = [(E.R, A.R, R.E) \times (E.R, R.A, R.E)]$$

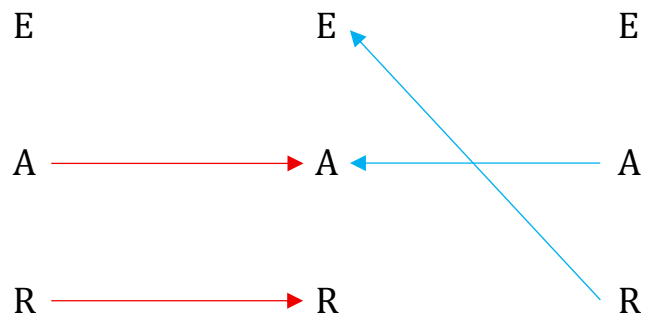


4. Randrelation

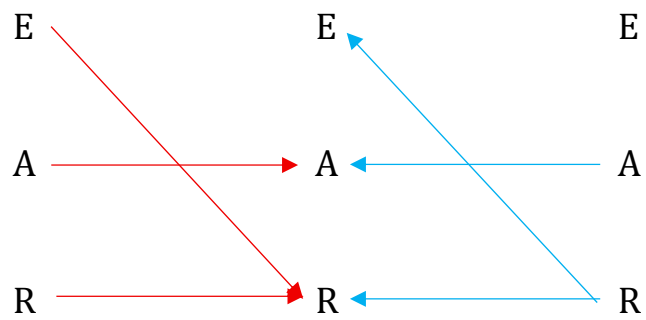
$$R^* = (E.R, A.A, R.R)$$



$$DR^* = (R.R, A.A, R.E)$$

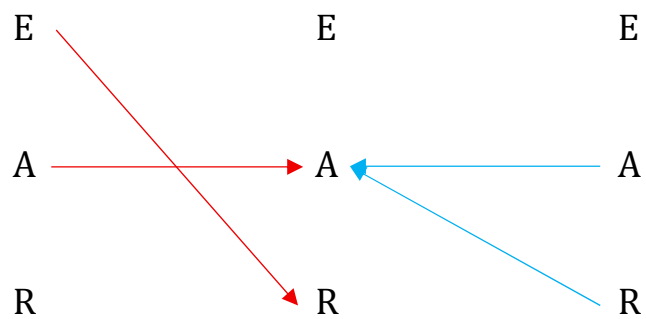


$$DS = [(E.R, A.A, R.R) \times (R.R, A.A, R.E)]$$

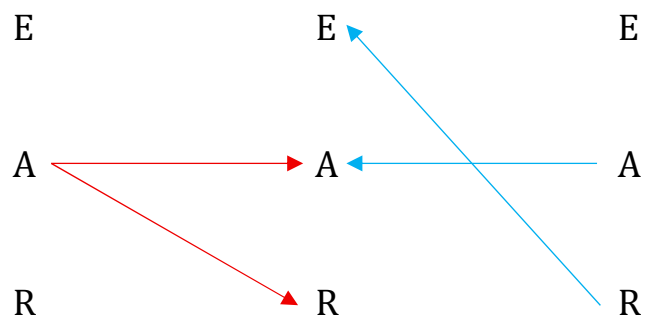


5. Randrelation

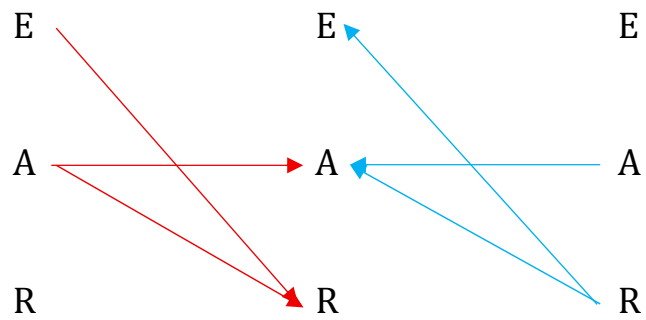
$$R^* = (E.R, A.A, R.A)$$



$$DR^* = (A.R, A.A, R.E)$$

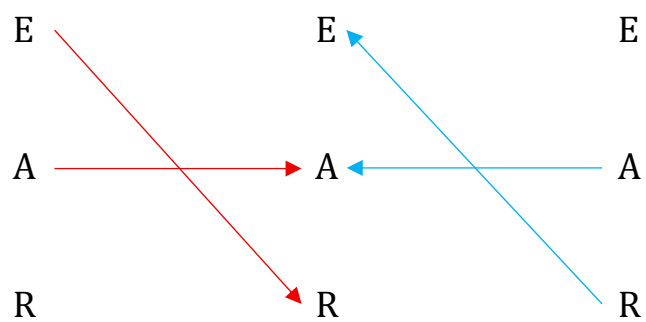


$$DS = [(E.R, A.A, R.A) \times (A.R, A.A, R.E)]$$

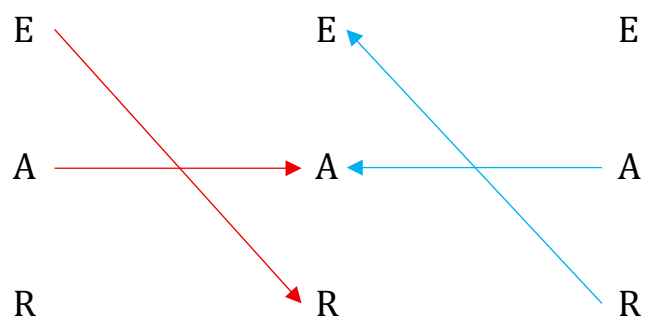


6. Randrelation

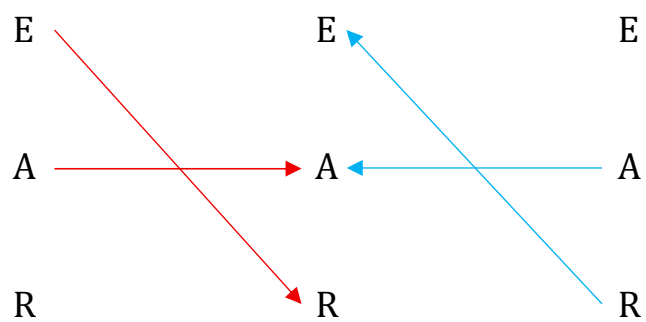
$$R^* = (E.R, A.A, R.E)$$



$$DR^* = (E.R, A.A, R.E)$$

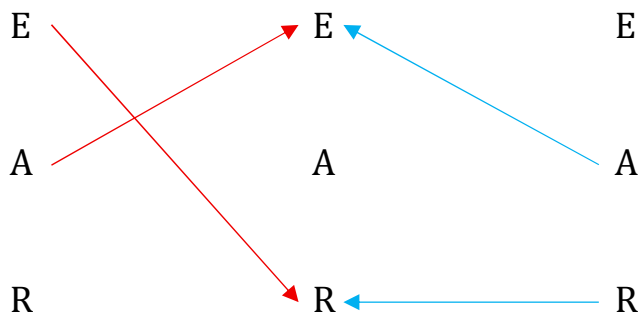


$$DS = [(E.R, A.A, R.E) \times (E.R, A.A, R.E)]$$

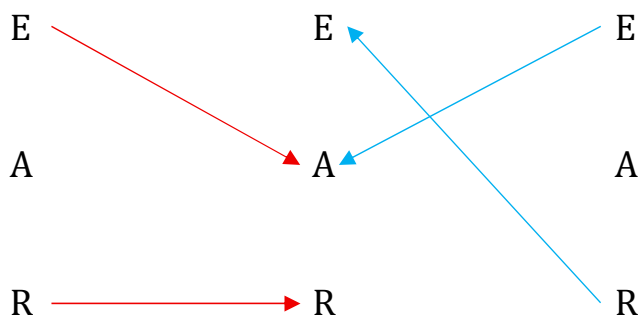


7. Randrelation

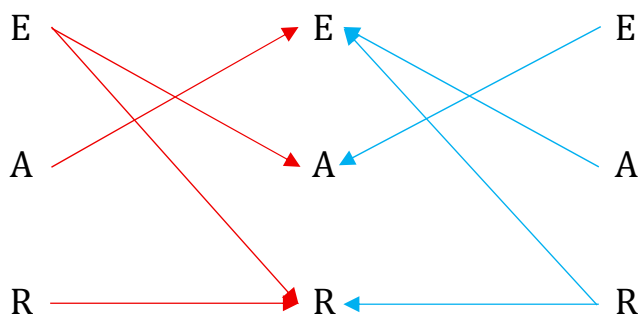
$$R^* = (E.R, A.E, R.R)$$



$$DR^* = (R.R, E.A, R.E)$$

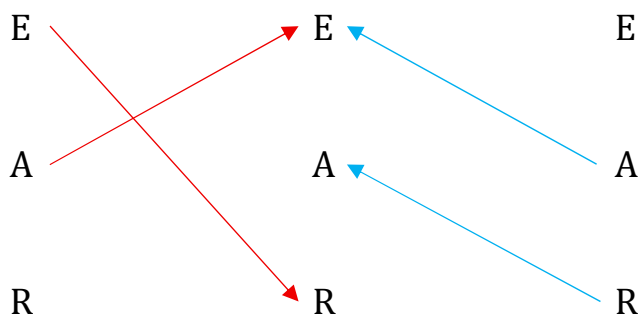


$$DS = [(E.R, A.E, R.R) \times (R.R, E.A, R.E)]$$

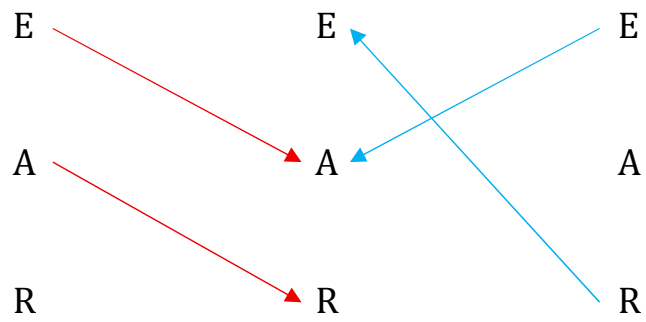


8. Randrelation

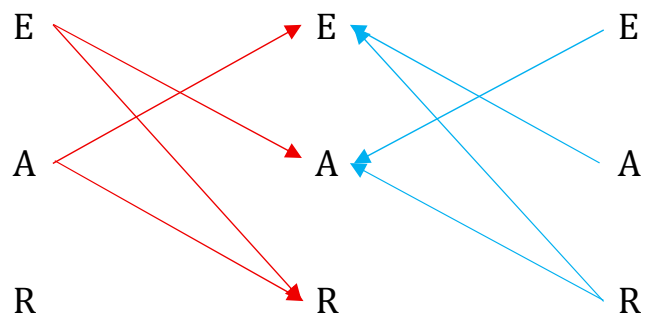
$$R^* = (E.R, A.E, R.A)$$



$$DR^* = (A.R, E.A, R.E)$$

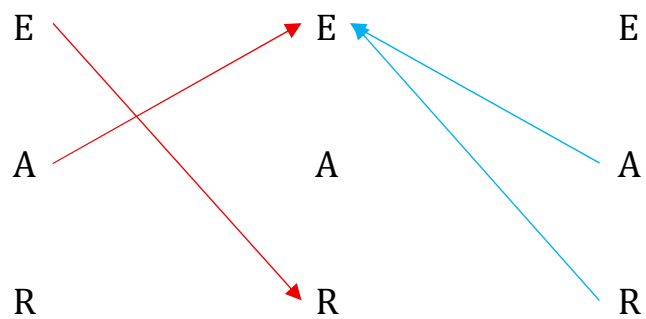


$$DS = [(E.R, A.E, R.A) \times (A.R, E.A, R.E)]$$

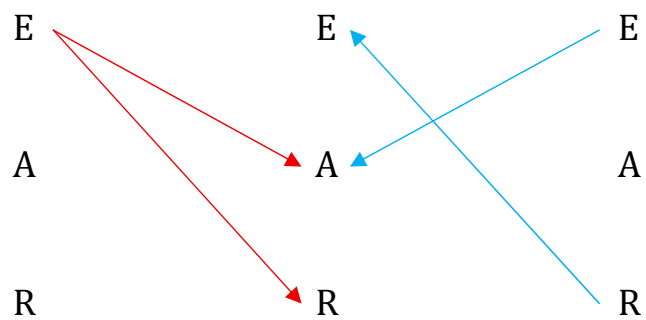


9. Randrelation

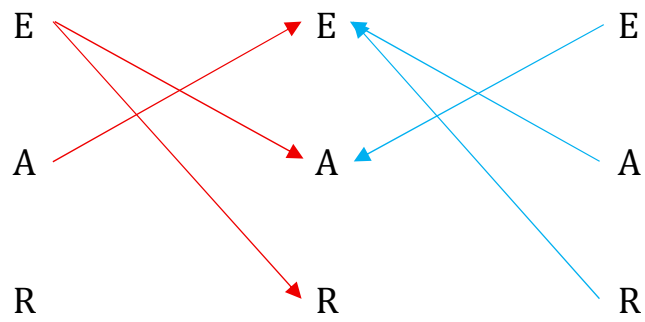
$$R^* = (E.R, A.E, R.E)$$



$$DR^* = (E.R, E.A, R.E)$$

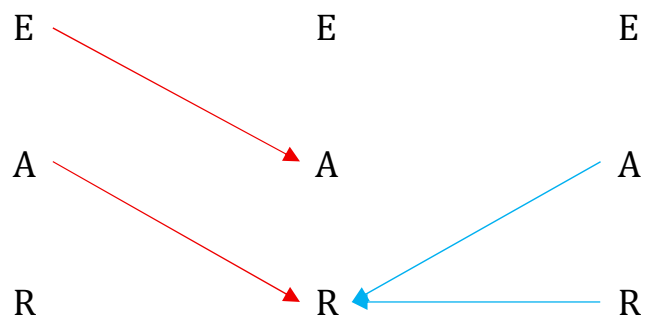


$$DS = [(E.R, A.E, R.E) \times (E.R, E.A, R.E)]$$

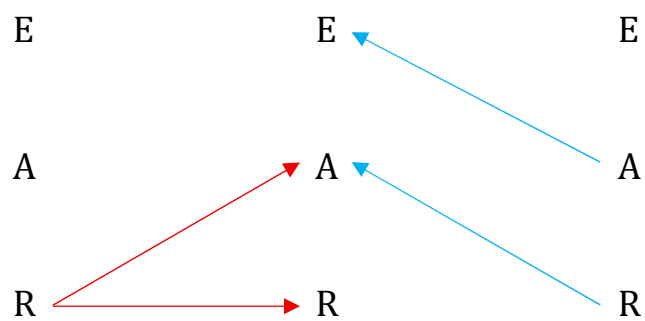


10. Randrelation

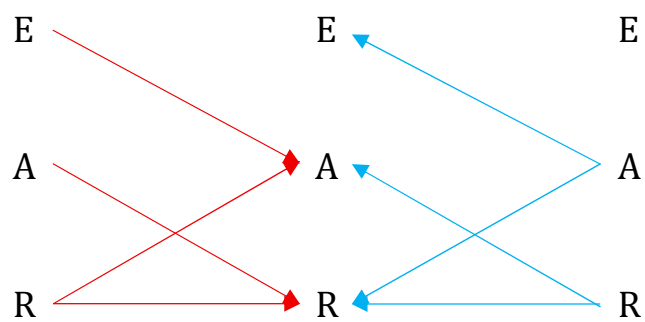
$$R^* = (E.A, A.R, R.R)$$



$$DR^* = (R.R, R.A, A.E)$$

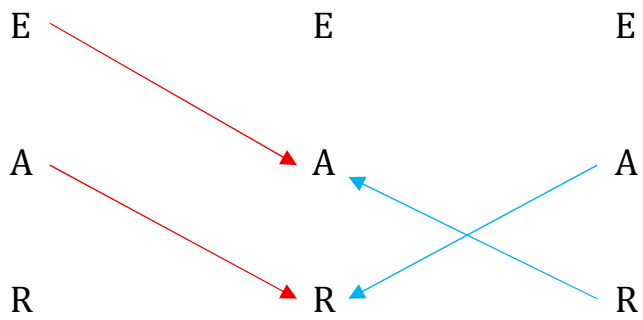


$$DS = [(E.A, A.R, R.R) \times (R.R, R.A, A.E)]$$

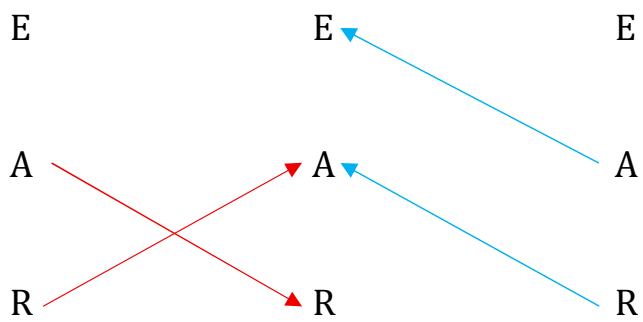


11. Randrelation

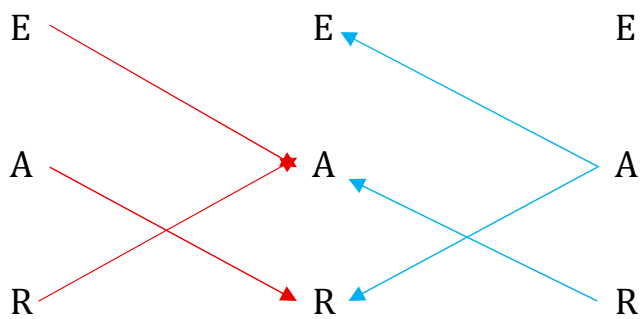
$$R^* = (E.A, A.R, R.A)$$



$$DR^* = (A.R, R.A, A.E)$$

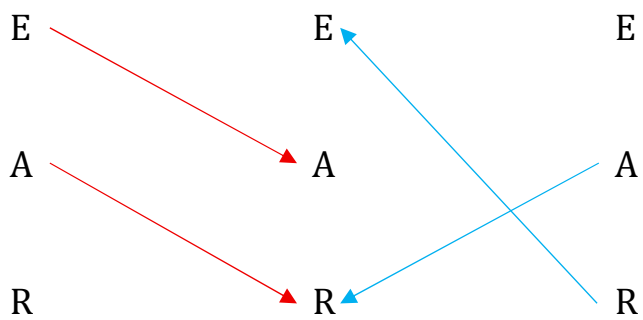


$$DS = [(E.A, A.R, R.A) \times (A.R, R.A, A.E)]$$

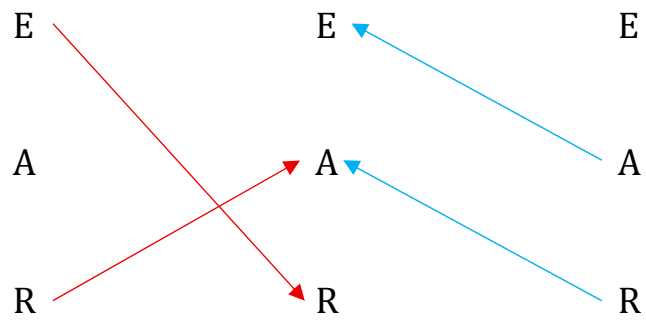


12. Randrelation

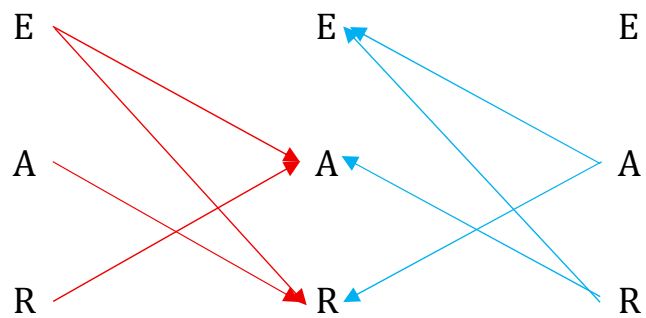
$$R^* = (E.A, A.R, R.E)$$



$$DR^* = (E.R, R.A, A.E)$$

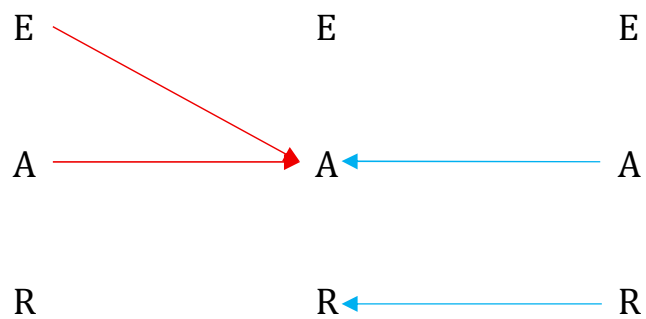


$$DS = [(E.A, A.R, R.E) \times (E.R, R.A, A.E)]$$

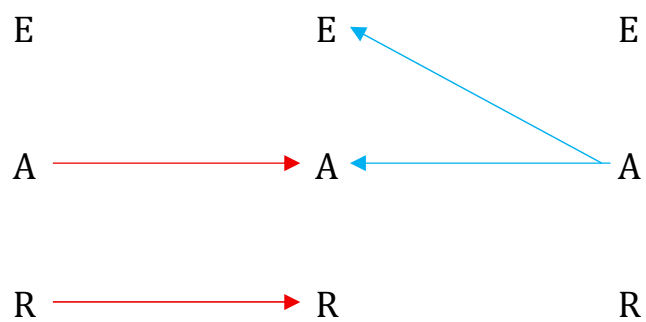


13. Randrelation

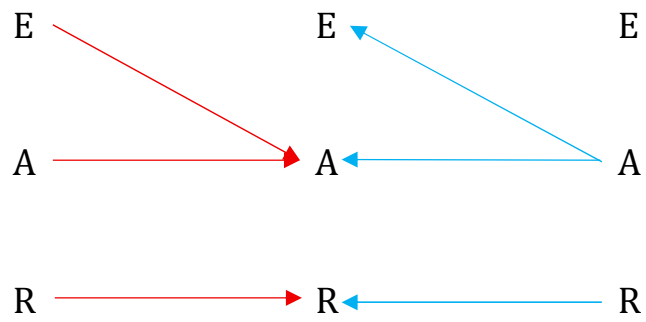
$$R^* = (E.A, A.A, R.R)$$



$$DR^* = (R.R, A.A, A.E)$$

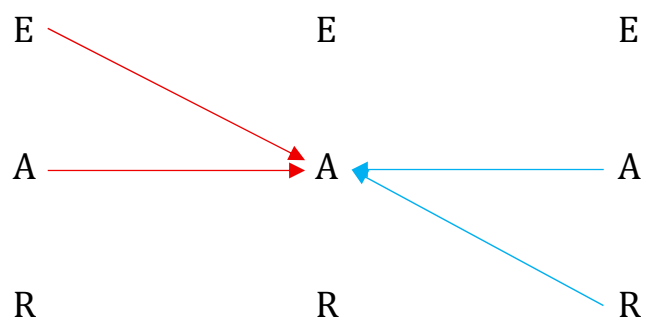


$$DS = [(E.A, A.A, R.R) \times (R.R, A.A, A.E)]$$

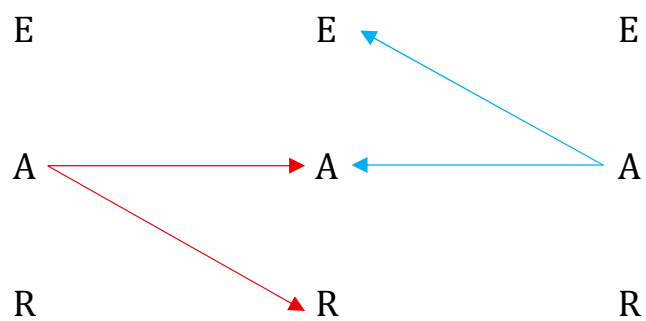


14. Randrelation

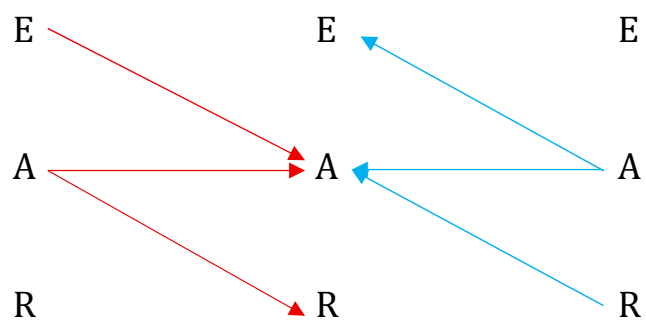
$$R^* = (E.A, A.A, R.A)$$



$$DR^* = (A.R, A.A, A.E)$$

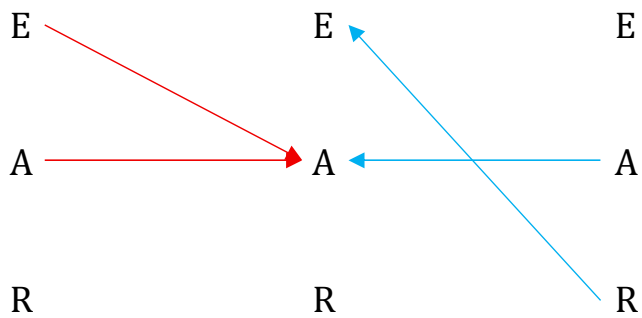


$$DS = [(E.A, A.A, R.A) \times (A.R, A.A, A.E)]$$

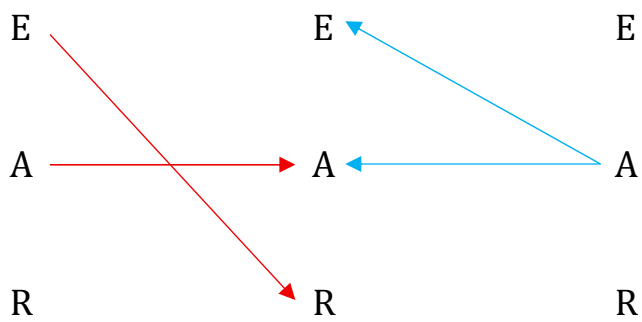


15. Randrelation

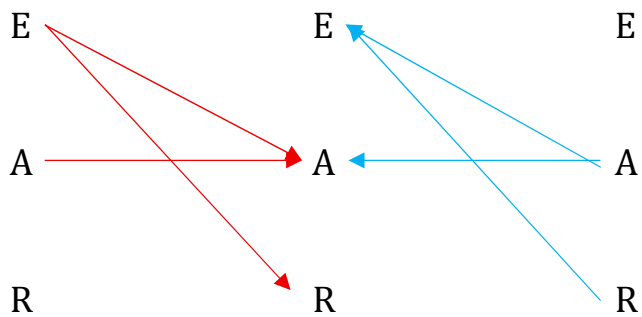
$$R^* = (E.A, A.A, R.E)$$



$$DR^* = (E.R, A.A, A.E)$$

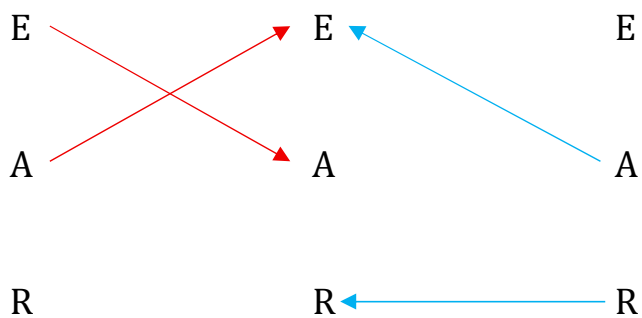


$$DS = [(E.A, A.A, R.E) \times (E.R, A.A, A.E)]$$

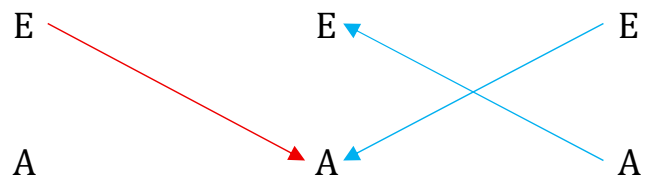


16. Randrelation

$$R^* = (E.A, A.E, R.R)$$

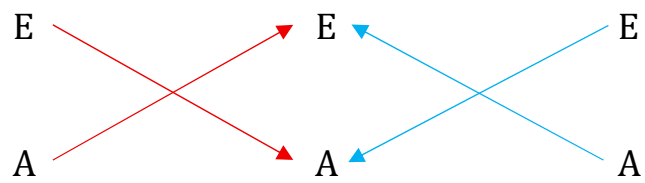


$$DR^* = (R.R, E.A, A.E)$$



$$R \longrightarrow R$$

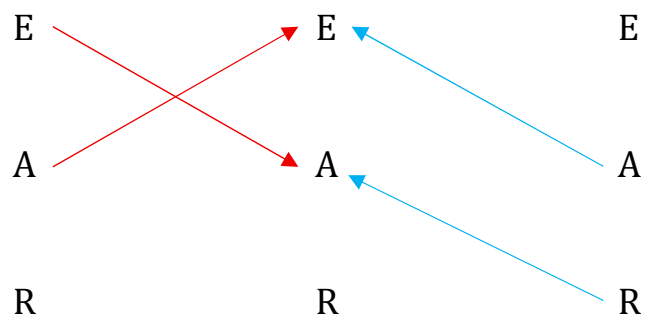
$$DS = [(E.A, A.E, R.R) \times (R.R, E.A, A.E)]$$



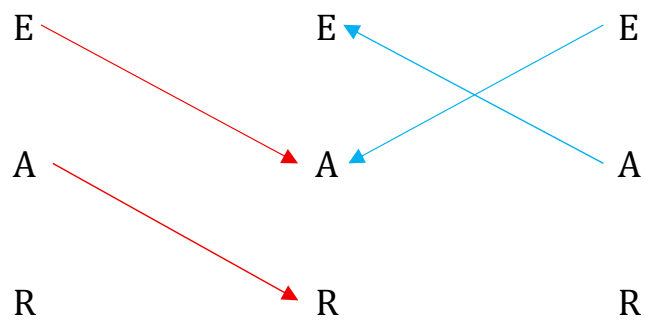
$$R \longrightarrow R$$

17. Randrelation

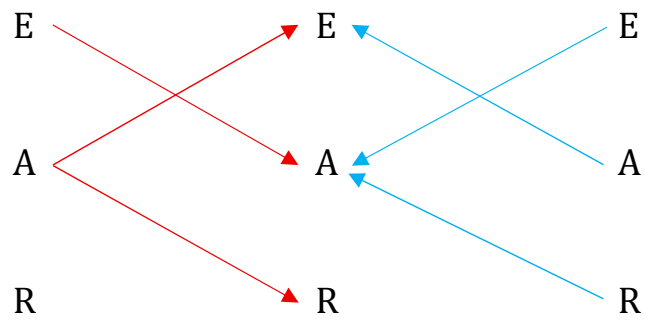
$$R^* = (E.A, A.E, R.A)$$



$$DR^* = (A.R, E.A, A.E)$$

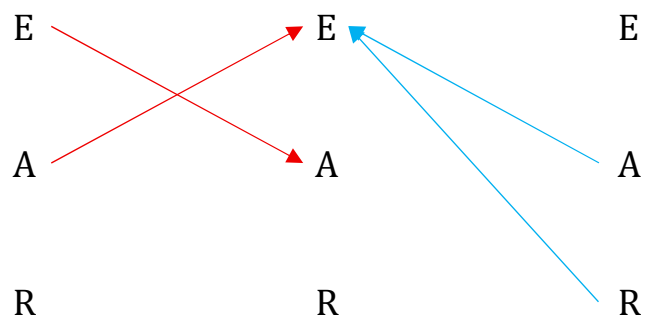


$$DS = [(E.A, A.E, R.A) \times (A.R, E.A, A.E)]$$

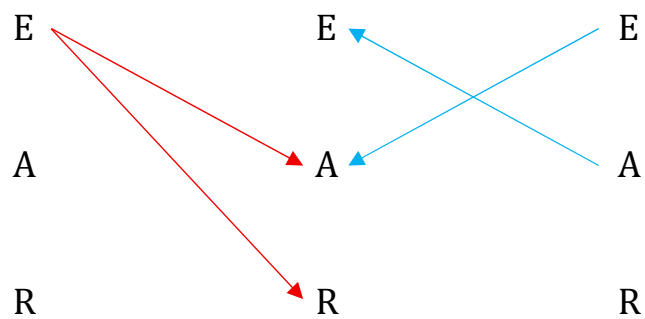


18. Randrelation

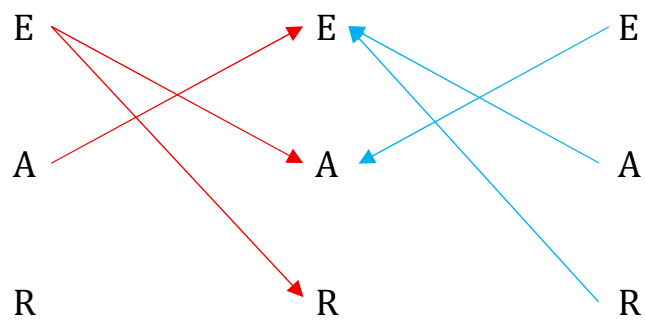
$$R^* = (E.A, A.E, R.E)$$



$$DR^* = (E.R, E.A, A.E)$$

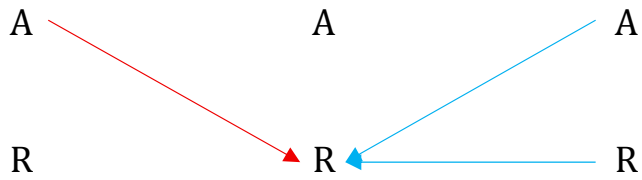


$$DS = [(E.A, A.E, R.E) \times (E.R, E.A, A.E)]$$

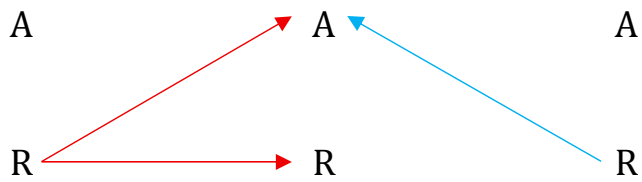


19. Randrelation

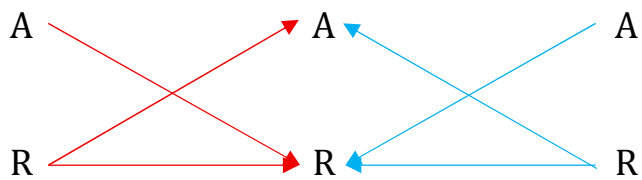
$$R^* = (E.E, A.R, R.R)$$



$$DR^* = (R.R, R.A, E.E)$$

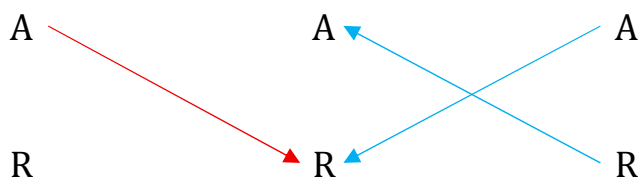


$$DS = [(E.E, A.R, R.R) \times (R.R, R.A, E.E)]$$



20. Randrelation

$$R^* = (E.E, A.R, R.A)$$



$$DR^* = (A.R, R.A, E.E)$$

E E ← E

A A A
 R R R

$$DS = [(E.E, A.R, R.A) \times (A.R, R.A, E.E)]$$

E → E ← E

A A A
 R R R

21. Randrelation

$$R^* = (E.E, A.R, R.E)$$

E → E ← E

A A A
 R R R

$$DR^* = (E.R, R.A, E.E)$$

E E ← E

A A A
 R R R

$$R^* = (E.E, A.A, R.R)$$

$$DR^* = (R.R, A.A, E.E)$$

The diagram illustrates three types of chemical bonds:

- E**: Ionic bond, represented by a blue arrow pointing from **E** to **E**.
- A**: Covalent bond, represented by a red arrow pointing from **A** to **A**.
- R**: Metallic bond, represented by a red arrow pointing from **R** to **R**.

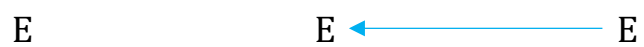
The diagram consists of three horizontal rows. Each row contains a letter on the left and a letter on the right, with two arrows between them. The top row has 'E' on both ends, with a red arrow pointing right and a blue arrow pointing left. The middle row has 'A' on both ends, with a red arrow pointing right and a blue arrow pointing left. The bottom row has 'R' on both ends, with a red arrow pointing right and a blue arrow pointing left.

23. Randrelation

$$R^* = (E.E, A.A, R.A)$$



$$DR^* = (A.R, A.A, E.E)$$

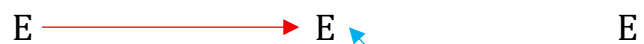


$$DS = [(E.E, A.A, R.A) \times (A.R, A.A, E.E)]$$

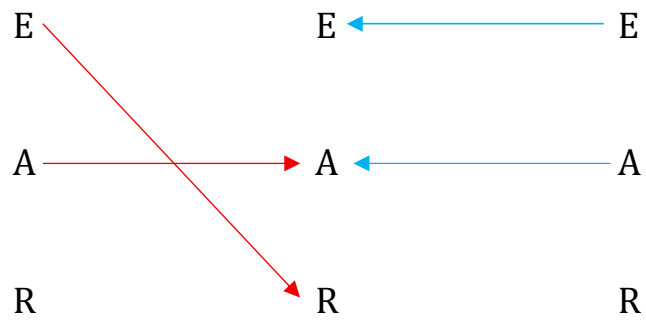


24. Randrelation

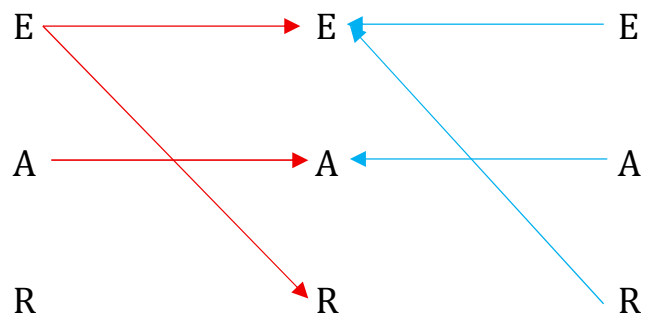
$$R^* = (E.E, A.A, R.E)$$



$$DR^* = (E.R, A.A, E.E)$$

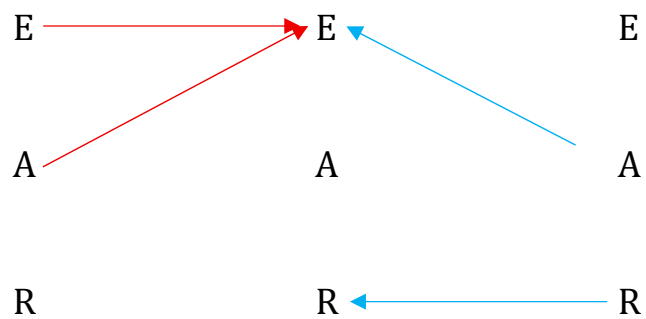


$$DS = [(E.E, A.A, R.E) \times (E.R, A.A, E.E)]$$

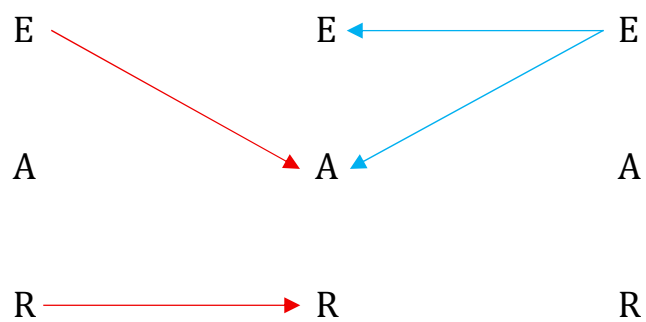


25. Randrelation

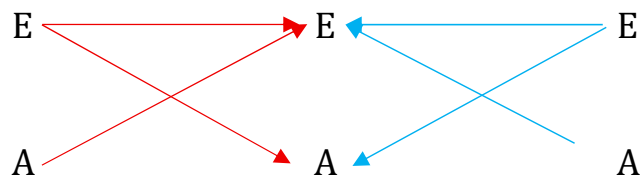
$$R^* = (E.E, A.E, R.R)$$



$$DR^* = (R.R, E.A, E.E)$$

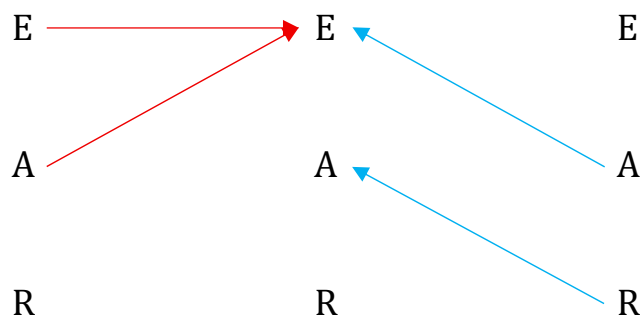


$$DS = [(E.E, A.E, R.R) \times (R.R, E.A, E.E)]$$

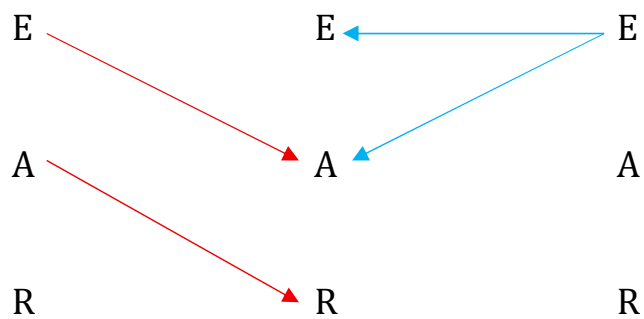


26. Randrelation

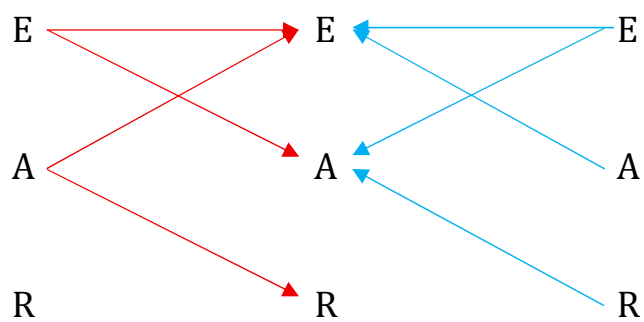
$$R^* = (E.E, A.E, R.A)$$



$$DR^* = (A.R, E.A, E.E)$$

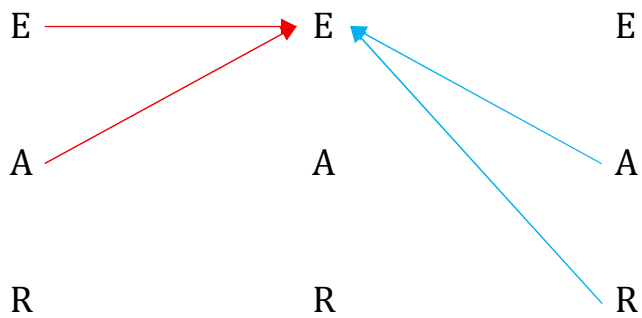


$$DS = [(E.E, A.E, R.A) \times (A.R, E.A, E.E)]$$

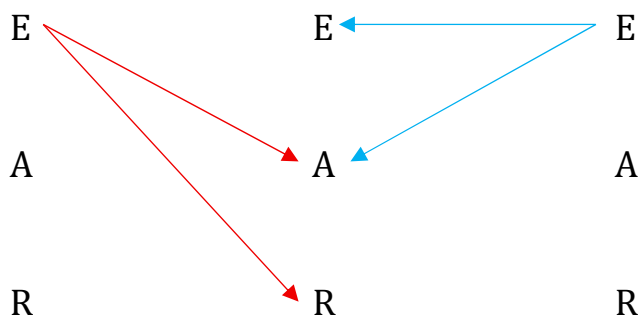


27. Randrelation

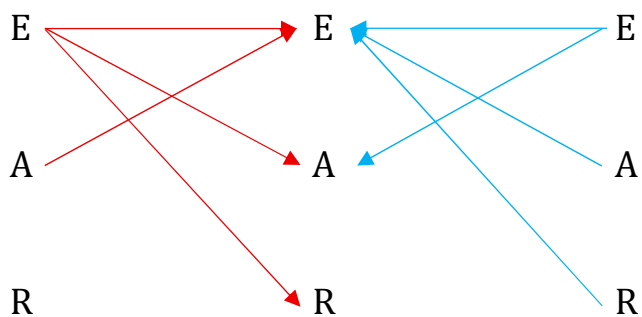
$$R^* = (E.E, A.E, R.E)$$



$$DR^* = (E.R, E.A, E.E)$$



$$DS = [(E.E, A.E, R.E) \times (E.R, E.A, E.E)]$$



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