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Corrigendum to “A multiple attribute group decision making model based on 2-tuple linguistic Pythagorean fuzzy Dombi aggregation operators for optimal selection of potential global suppliers” [Heliyon 10 (14) (July 2024) e34570]

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In the original published version of this article contained the following formula:

Definition 3.2

Let $¥ = ((\not{\phi}_u, £), (\not{\phi}_v, \aleph))$, $¥_1 = ((\not{\phi}_{u_1}, £_1), (\not{\phi}_{v_1}, \aleph_1))$, and $¥_2 = ((\not{\phi}_{u_2}, £_2), (\not{\phi}_{v_2}, \aleph_2))$ are three 2TLPFNs, and $\varphi > 0$, then some Dombi $t-$*norm* and Dombi $t-$*conorm* operational laws for 2TLPFNs are designed as follows;

$$1.\ ¥_1 \oplus ¥_2 = \left(\begin{array}{c} \Delta\left(\tau - \dfrac{\tau}{1 + \left\{ \left(\dfrac{\Delta^{-1}(\not{\phi}_{u_1}, £_1)}{\tau - \Delta^{-1}(\not{\phi}_{u_1}, £_1)} \right)^{\gamma} + \left(\dfrac{\Delta^{-1}(\not{\phi}_{u_2}, £_2)}{\tau - \Delta^{-1}(\not{\phi}_{u_2}, £_2)} \right)^{\gamma} \right\}^{\frac{1}{\gamma}}} \right), \\ \Delta\left(\dfrac{\tau}{1 + \left\{ \left(\dfrac{\tau - \Delta^{-1}(\not{\phi}_{v_1}, \aleph_1)}{\Delta^{-1}(\not{\phi}_{v_1}, \aleph_1)} \right)^{\gamma} + \left(\dfrac{\tau - \Delta^{-1}(\not{\phi}_{v_2}, \aleph_2)}{\Delta^{-1}(\not{\phi}_{v_2}, \aleph_2)} \right)^{\gamma} \right\}^{\frac{1}{\gamma}}} \right) \end{array} \right).$$

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$$2.\ \text{¥}_1 \otimes \text{¥}_2 = \left(\begin{array}{c} \Delta\left(\dfrac{\tau}{1+\left\{\left(\frac{\tau-\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)}{\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)}\right)^{\gamma}+\left(\frac{\tau-\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)}{\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right), \\ \Delta\left(\tau-\dfrac{\tau}{1+\left\{\left(\frac{\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)}{\tau-\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)}\right)^{\gamma}+\left(\frac{\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)}{\tau-\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right) \end{array}\right).$$

$$3.\ \varphi.\text{¥} = \left(\begin{array}{c} \Delta\left(\tau-\dfrac{\tau}{1+\left\{\varphi\left(\frac{\Delta^{-1}(\text{ɇ}_u,\pounds)}{\tau-\Delta^{-1}(\text{ɇ}_u,\pounds)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right), \\ \Delta\left(\dfrac{\tau}{1+\left\{\varphi\left(\frac{\tau-\Delta^{-1}(\text{ɇ}_v,\aleph)}{\Delta^{-1}(\text{ɇ}_v,\aleph)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right) \end{array}\right).$$

$$4.\ \text{¥}^{\varphi} = \left(\begin{array}{c} \Delta\left(\dfrac{\tau}{1+\left\{\varphi\left(\frac{\tau-\Delta^{-1}(\text{ɇ}_u,\pounds)}{\Delta^{-1}(\text{ɇ}_u,\pounds)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right), \\ \Delta\left(\tau-\dfrac{\tau}{1+\left\{\varphi\left(\frac{\Delta^{-1}(\text{ɇ}_v,\aleph)}{\tau-\Delta^{-1}(\text{ɇ}_v,\aleph)}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right) \end{array}\right).$$

The following lists several operations on 2TLPFNs that use the Dombi $t-$ *norm* and Dombi $t-$ *conorm.*

To address the issue in the original published version of the article, Definition 3.2 has been updated to correctly reflect that each term in the expression is squared, and then the entire expression is raised to the power of 1/2. This correction ensures that the definition is mathematically accurate and aligns with the intended formulation.

There is an update on Definition 3.2 as it should state that each term is squared and then the whole expression is raised to the power of 1/2. The correct version of Definition 3.2 can be found below:

Definition 3.2

Let $\text{¥} = ((\text{ɇ}_u,\pounds),(\text{ɇ}_v,\aleph))$, $\text{¥}_1 = ((\text{ɇ}_{u_1},\pounds_1),(\text{ɇ}_{v_1},\aleph_1))$, and $\text{¥}_2 = ((\text{ɇ}_{u_2},\pounds_2),(\text{ɇ}_{v_2},\aleph_2))$ are three 2TLPFNs, and $\varphi > 0$, then some Dombi $t-$ *norm* and Dombi $t-$ *conorm* operational laws for 2TLPFNs are designed as follows;

$$1.\ \text{¥}_1 \oplus \text{¥}_2 = \left(\begin{array}{c} \Delta\left(\tau^2-\dfrac{\tau^2}{1+\left\{\left(\frac{\left(\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)\right)^2}{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)\right)^2}\right)^{\gamma}+\left(\frac{\left(\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)\right)^2}{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)\right)^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2}, \\ \Delta\left(\dfrac{\tau^2}{1+\left\{\left(\frac{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)\right)^2}{\left(\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)\right)^2}\right)^{\gamma}+\left(\frac{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)\right)^2}{\left(\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)\right)^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2} \end{array}\right).$$

$$2.\ \text{¥}_1 \otimes \text{¥}_2 = \left(\begin{array}{c} \Delta\left(\dfrac{\tau^2}{1+\left\{\left(\frac{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)\right)^2}{\left(\Delta^{-1}\left(\text{ɇ}_{u_1},\pounds_1\right)\right)^2}\right)^{\gamma}+\left(\frac{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)\right)^2}{\left(\Delta^{-1}\left(\text{ɇ}_{u_2},\pounds_2\right)\right)^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2}, \\ \Delta\left(\tau^2-\dfrac{\tau^2}{1+\left\{\left(\frac{\left(\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)\right)^2}{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{v_1},\aleph_1\right)\right)^2}\right)^{\gamma}+\left(\frac{\left(\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)\right)^2}{\tau^2-\left(\Delta^{-1}\left(\text{ɇ}_{v_2},\aleph_2\right)\right)^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2} \end{array}\right).$$

3. $$\varphi.¥ = \left(\begin{array}{c} \Delta\left(\tau^2 - \frac{\tau^2}{1+\left\{\varphi\left(\frac{(\Delta^{-1}(\notin_u,£))^2}{\tau^2-(\Delta^{-1}(\notin_u,£))^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2}, \\ \Delta\left(\frac{\tau^2}{1+\left\{\varphi\left(\frac{\tau^2-(\Delta^{-1}(\notin_v,\aleph))^2}{(\Delta^{-1}(\notin_v,\aleph))^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2} \end{array} \right).$$

4. $$¥^{\varphi} = \left(\begin{array}{c} \Delta\left(\frac{\tau^2}{1+\left\{\varphi\left(\frac{\tau^2-(\Delta^{-1}(\notin_u,£))^2}{(\Delta^{-1}(\notin_u,£))^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2}, \\ \Delta\left(\tau^2 - \frac{\tau^2}{1+\left\{\varphi\left(\frac{(\Delta^{-1}(\notin_v,\aleph))^2}{\tau^2-(\Delta^{-1}(\notin_v,\aleph))^2}\right)^{\gamma}\right\}^{\frac{1}{\gamma}}}\right)^{1/2} \end{array} \right).$$

The following lists several operations on 2TLPFNs that use the Dombi $t-norm$ and Dombi $t-conorm$.

The authors apologize for the errors. Both the HTML and PDF versions of the article have been updated to correct the errors.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Tmader Alballa reports article publishing charges was provided by Princess Nourah bint Abdulrahman University. Tmader Alballa reports a relationship with Princess Nourah bint Abdulrahman University that includes: employment and funding grants. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.