



Correction to: Exploring the Methodological Foundation of a Systemic Approach in Grey Systems Theory

Rafał Mierzwiak¹

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In this original article, there are several editing errors and it is given below:

- In section 2. The Problem of Axiomatisation of the Concept of Grey, Axioms 1 to 4 are incorrect. It should be:

Axiom 1. $G^\circ(A_i) \geq 0$ for any $A_i \in \mathcal{F}$

Axiom 2. $G^\circ(A_i) = 0 \Leftrightarrow A_i = \{a_i\}$, with $A_i = \{a_i\}$ denotes any one-element set belonging to the \mathcal{F}

Axiom 3. $G^\circ(\Omega) = 1$

Axiom 4. $G^\circ(\bigcup_{i \in \mathbb{N}} A_i) = \sum_{i \in \mathbb{N}} G^\circ(A_i)$, where: $A_i \cap A_j = \emptyset \wedge A_i \neq \{a_i\}$

- In section 2. The Problem of Axiomatisation of the Concept of Grey, Definition 1 is incorrect. It should be:

Definition 1. If $\{\Omega, \mathcal{F}, G^\circ\}$, is a grey space and $\Omega \subset \mathcal{R}$ and $A \subset \mathcal{F}$, then a continuous grey number is called an unknown number $d^* \in \mathcal{R}$, about which we can only say that: $\underline{a} \leq d^* \leq \bar{a}$, whereby: $\underline{a} = \inf(A)$, $\bar{a} = \sup(A)$.

- **In section 2.** The Problem of Axiomatisation of the Concept of Grey, the following text is editorially incorrect:

Since the Numbers Mentioned are sets of One Element, the Following Axiom Applies to them.

It should be:

Since the numbers mentioned are sets of one Element, the following axiom applies to them.

- In section 4. The Category of Quality and its Relevance to Methodological Issues in Grey Systems Theory and Other Approaches to Data Analysis Definition 12 is incorrect. It should be:

Definition 12. Quality is called a set of characteristics.

$$Q = \{a_1, a_2, a_3, \dots\} \text{ or } Q = \{a_1, a_2, a_3, \dots, a_n\} \text{ or } Q = \emptyset$$

The original article has been revised due to several editing errors.

The original article can be found online at <https://doi.org/10.1007/s10699-024-09945-0>.

✉ Rafał Mierzwiak
rafal.mierzwiak@put.poznan.pl

¹ Faculty of Management Engineering, Poznan University of Technology, 2 Jacka Rychlewskiego Street, 60-965 Pozna, Poland

- In section 4. The Category of Quality and its Relevance to Methodological Issues in Grey Systems Theory and Other Approaches to Data Analysis Definition 12 is incorrect. It should be:

Definition 14. A quality state is called a set of state of a feature

$$Q_s = \{s_{a1}, s_{a2}, \dots\} \text{ or } Q_s = \{s_{a1}, s_{a2}, \dots, s_{an}\} \text{ or } Q_s = \emptyset$$

- In section 4. The Category of Quality and its Relevance to Methodological Issues in Grey Systems Theory and Other Approaches to Data Analysis, the following text is to be corrected:

$$Q^{FUZZY} = \{(a_i, \mu_Q(a_i)) | a_i \in Q\}; \mu_Q : Q \rightarrow [0, 1]; i \in N \quad (1.5)$$

It should be:

$$Q^{FUZZY} = \{(a_i, \mu_Q(a_i)) | a_i \in Q\}; \mu_Q : Q \rightarrow [0, 1]; i \in N$$

- In section 4. The Category of Quality and its Relevance to Methodological Issues in Grey Systems Theory and Other Approaches to Data Analysis, the following text is to be corrected:

In an analogous way, the grey quality state of an object can be determined by using the concept of feature state and quality state (1.8)

$$Q_s^{GREY} = \{(S_{ai}, G_s^\circ(S_{ai})) | Q_s \subset \Omega_s, S_{ai} \subset \mathcal{F}(\Omega_s), s_{ai} \in S_{ai}\}; G_s^\circ : \mathcal{F}(\Omega_s) \rightarrow [0, 1]; i \in N \quad (1.8)$$

It should be:

In an analogous way, the grey quality state of an object can be determined by using the concept of feature state and quality state

$$Q_s^{GREY} = \{(S_{ai}, G_s^\circ(S_{ai})) | Q_s \subset \Omega_s, S_{ai} \subset \mathcal{F}(\Omega_s), s_{ai} \in S_{ai}\}; G_s^\circ : \mathcal{F}(\Omega_s) \rightarrow [0, 1]; i \in N$$

- In section 4. The Category of Quality and its Relevance to Methodological Issues in Grey Systems Theory and Other Approaches to Data Analysis, the following text is to be corrected:

Q? the quality of the item in question

It should be:

Q - the quality of the item in question

- There are the following typographical errors in the References section:

First, there is:

Boris, T. (1984). Quality category in comparative statistical analysis. University Press of the Wroclaw University of Economics. (in Polish).

It should be:

Borys, T. (1984). Quality category in comparative statistical analysis. University Press of the Wroclaw University of Economics. (in Polish).

Secondly, there is:

Mazur, M. (1987). The Concept of a system and the Rigours of its application. Advances in Cybernetics, 10, 21–29. (in Polish).

It should be:

Mazur, M. (1987). The Concept of a system and the rigours of its application. Advances in Cybernetics, 10, 21–29. (in Polish).

Thirdly, there is:

Mantura, W. (2010). Introduction to qualitology. Publishing House of Poznan University of Technology

It should be:

Mantura, W. (2020). Overview of qualitology. Publishing House of Poznan University of Technology

The Original article has been corrected