

ACCURACY AND PRECISION IN SPECIALIZED TERMINOLOGY

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Abstract: Accuracy and precision are key terms in technical terminology in various fields that include research, engineering, medicine, finance and more. These concepts play a key role in ensuring the reliability, validity and clarity of measurements, data and information. Understanding accuracy and precision is essential for professionals to communicate effectively in their field and make informed decisions based on reliable information. This comprehensive study delves into the nuanced meanings of the technical terminological accuracy and precision, their importance across disciplines, and how these concepts interact¹.

Key words: Linguistic equivalence, translational equivalence, terminology normalization, translation quality, semantic equivalence.

Technical Terminology Definition of Accuracy. In technical terminology, accuracy refers to the degree of accuracy or precision of a measurement or value relative to a true or accepted value. It measures how close the measured value is to the actual measured value. Accuracy is a critical aspect of specialized terminology because it determines the reliability of data, measurements and information.

In scientific research, accuracy is paramount to drawing correct conclusions from experimental data. In chemistry, for example, accurate measurement of substance concentrations is essential for understanding reaction kinetics and drug development. Similarly, in physics, accurate measurements of physical properties such as mass, length, and time are crucial to building and testing scientific theories².

In engineering, precision is crucial in the design and manufacture of components and structures. Accurate measurements are necessary to ensure that products meet safety standards and perform as intended. For example, in aerospace engineering, accurate measurements of aerodynamic properties and material stress are required to design aircraft that meet strict safety and performance requirements.

¹ Sager, J. C., Dungworth, D., & McDonald, S. A. (Eds.). (1980). *English special languages: Principles and practice in science and technology* (Vol. 3). Walter de Gruyter

² Depraetere, I., & Langacker, R.W. (2012). *Cognitive Linguistics: Basic Readings*. Walter de Gruyter.



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Accuracy in medical terminology is essential to making correct diagnoses and treatment decisions. Accurate measurement of physiological parameters such as blood pressure, heart rate and blood sugar levels is crucial for monitoring the health of patients and adjusting treatment programs. In diagnostic imaging such as MRI and CT scans, precise measurements of anatomical structures help identify abnormalities and guide surgical procedures.

In financial terminology, accuracy is critical to making sound investment decisions and predicting economic trends. Accurate information on market developments, valuations and financial indicators enables investors and analysts to effectively assess risks and opportunities. Financial accounting accuracy is also important for accurate budgeting, financial reporting and risk management³.

Definition of accuracy in special terminology.

Accuracy in special terminology refers to the consistency or repeatability of measurements. It measures the degree of accuracy of repeated measurements or values. Accuracy is a key concept in specialized fields because it expresses the detail and reliability of measurements or data.

In scientific research, precision is important to ensure repeatability and consistency of experimental results. Accurate measurements allow researchers to detect subtle changes in variables and assess the significance of experimental results. For example, in fields such as genetics and genomics, precision sequencing techniques allow researchers to analyze DNA sequences with high precision, resulting in precise genetic diagnoses and personalized medicine.⁴

In design, precision is critical to manufacturing processes and quality control. Accurate measurements of dimensions, tolerances and material properties are necessary for components to fit together correctly and function reliably. Precision techniques are also used in areas such as microelectronics and nanotechnology to produce complex devices with high precision.

In medical terminology, accuracy is crucial for monitoring patients' health and prescribing treatment. Accurate measurements of drug doses, infusion rates and physiological parameters help healthcare professionals provide tailored care for individual patients. Precision medicine approaches that use detailed genetic and molecular information

³ Gerzymisch-Arbogast, H., & Fandrych, C.A.M.(2012). *Terminology and Knowledge Engineering: Proceedings of the 6th International Conference on Terminology and Artificial Intelligence (TIA 2012), Grenoble, France, November 28-30, 2012.*

⁴ Kageura, K., Umino, B.(1996) *Methods for Automatic Term Recognition: A Review. Terminology 3(2):259-289*



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to inform treatment decisions are revolutionizing healthcare by enabling personalized and effective treatments.

In financial terminology, accuracy is crucial when performing complex calculations related to investment valuation, risk assessment and financial modeling. Accurate numerical analyzes enable financial professionals to make informed decisions about asset allocation, portfolio management and hedging strategies. High accuracy of financial reporting is also necessary to comply with regulatory standards and accounting principles.

The accuracy-accuracy ratio is a key factor in technical terminology. Although the two concepts are related, they are separate metrics that together define the quality of measurements or data.

The measurement may be accurate, but not exact. For example, if a group of archers consistently hit the same spot on a target a mile away, their shots are accurate (hitting the target) but not accurate (shots are not tightly clustered around a specific point). On the other hand, a measure can be accurate but not exact. If a group of archers consistently hit close to each other but outside the mast, their shots are accurate (they consistently hit the same area) but inaccurate (they miss the intended target). Additionally, measurements can be both accurate and precise. In this case, the measurements are not only close to the true value, but constantly converge around that value. For example, if a group of archers hit a pole repeatedly with little variation in their shots, their shots will be both accurate and precise⁵.

It is also possible that the measurements are not accurate or precise. There is no consistent pattern or proximity to the true value in this scenario. For example, if archers' shots show a random spread without clustering around the posts, their shots are neither precise nor accurate.

A balance of accuracy and precision is crucial for specialist terminology to ensure the reliability and detail of the information. Achieving high levels of precision and accuracy is often a goal in many fields; however, a trade-off may occur due to limitations in measurement techniques or resources⁶.

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