

## The Fatal Mistake: Inaccurate Classification of Knowledge

**Basic rules and principles for gaining trustworthy knowledge:** To be useful, academic knowledge must be valid and trustworthy. To be trustworthy, any knowledge must not only be validated by using one or more proven methods but also be testable and falsifiable. Today, there are one or more proven and widely employed methods to validate (or falsify) knowledge that belongs to each class of academic disciplines (e.g. sciences, mathematics, economics, geography, or sociology).

*This is not a debatable statement: It is vital to make knowledge in the textbooks for every academic discipline trustworthy and objective. To make any given knowledge trustworthy through proper validation, it is essential to find the best available methods (that are proven) by accurately classifying the knowledge and then to validate the knowledge by using these best available (e.g. proven) methods. Every mature academic discipline (including soft sciences such as sociology, geology, psychology or economics) provides one or more proven methods (that are widely used) to validate (or falsify) any given knowledge, provided it falls under the realm of the discipline.*

**Inventing and perfecting such proven methods is vital for any mature academic discipline to accumulate trustworthy knowledge.** Every mature academic discipline (e.g. economics or sociology) provides proven methods to validate or falsify knowledge that falls under the realm of the particular discipline. Knowledge about the effects of interest rates, taxes, regulation, excise, and customs duty falls under the realm of economics, so such knowledge must be classified as economic knowledge. Knowledge about societies such as social order, culture, behavior, and change falls under the realm of sociology. Knowledge about physical things and reality falls under the realm of science, so such knowledge must be classified as scientific knowledge.

Trustworthiness and the quality or objectivity of knowledge in the textbooks for any discipline is as good as the quality and objectivity of the best available methods that are used to validate the knowledge. It is an indisputable fact that the available methods for Science and Mathematics (to accumulate valid knowledge) are highly objective and of the highest quality. Every mature discipline (e.g. soft sciences) strive to provide and perfect best possible methods to accumulate trustworthy knowledge.

Computer Science (comprising of many theories such as Computational Theory, Complexity Theory, Algorithms, Automata Theory, and Information theory) started more than 50-60 years as “Computational Science” – a branch of pure mathematics. The whole of “Computational Science” or “Computer Science” was blanketly classified more than 50-60 years ago as a branch of pure mathematics.

The flawed blanket classification of Computer Science (which includes the theoretical foundation for Software) is still being blindly defended without applying mind. This blanket classification is devoid of reason or logic. As soon as researchers apply mind, it will be apparent that this blanket classification is a fatal mistake and the root cause for the software crisis. The BoK (Body of Knowledge) to understand the reality (e.g. concepts, anatomy, and methods) about Components, CBPs (Component-Based Products), and CBE (Component-Based Engineering) has been egregiously classified as Mathematics.

Mathematics (i.e. methods provided by mathematics) is useless for gaining scientific insights about the nature, essential properties, and anatomy of physical things (e.g. components, CBPs) and mechanisms (e.g. for CBE) that govern reality. Science has the scientific methods to test, validate, or falsify knowledge that falls under the realm of science. Mathematics has methods for various branches of

mathematics to test, validate, or falsify knowledge that falls under the realm of mathematics.

The root cause for the software crisis: Knowledge about physical things and reality (e.g. about components and CBE) has been wrongly classified under mathematics. Hence, the prevailing knowledge in software textbooks such as that about the nature and essential properties of components, the anatomy and structure of CBPs, and the mechanisms for CBE are flawed. Even a high school graduate can understand this fact: It is the most egregious of mistakes to classify knowledge about such physical things and reality as mathematics.

Computer Science and Software Engineering are being taught as academic disciplines. Hence, the knowledge in software textbooks about the nature, properties and anatomy of components, CBPs, and methods for CBE must be validated objectively and made trustworthy (i.e. must be testable and open to refutation and falsification). Unfortunately, my efforts to falsify baseless myths (e.g. about so-called components and CBE) by presenting empirical evidence and facts is being widely perceived as heresy. I have been imploring NSF.gov and ACM.org to classify software knowledge as scientific knowledge, so that the knowledge can become trustworthy by being testable and falsifiable.

The software crisis and spaghetti code is already responsible for hundreds of deaths and injuries. Unless spaghetti code is addressed, it will certainly cause many more deaths and injuries. Other costs include trillions of dollars to the global economy, and a drag on the progress of technology, economy, and science. I cannot relent until this dreadful and deadly mistake is exposed. I am willing to face criminal prosecution if anyone can prove my allegations wrong by using objective investigation. It is a

violation of the law (e.g. Consumer Product Safety Act) to neglect, suppress or sabotage my allegations and reports of this deadly defect.

**Furthermore, I am open to bearing the costs for an objective investigation.**

**Is it not self-evident fact that knowledge about physical things and reality falls under the realm of science? Even a high school graduate would agree that it would be foolish for the classification of this knowledge (i.e about the nature and properties of components and the anatomy and structure of CBPs) to fall under mathematics.**

The cardinal rule and an essential requirement for any academic discipline is to acquire valid and trustworthy knowledge for the discipline, and it is impossible to acquire valid and trustworthy knowledge without having and using proven methods to objectively test the knowledge to determine if it is valid or flawed. Every mature academic discipline provides best possible methods, which were created and evolved by perfecting the methods. Furthermore, another essential condition or requirement is that the knowledge must be open to refutation and falsification (e.g. whenever previously unknown but valid and verifiable fact or counterevidence is discovered).

Computer Science is not an exception to this cardinal rule for academic disciplines. The BoK (Body of Knowledge) for Components, CBPs, and CBE in software textbooks blatantly violates these two cardinal principles. Knowledge about Components, CBPs, and CBE in software textbooks is untested, unproven, and fundamentally flawed. Software researchers are offended, and it is wildly perceived to be heresy when I try to refute or falsify the myths (i.e. baseless presumptions or beliefs) about software Components, CBPs, and CBE in software textbooks.