

# 47 TRUTH TO TELL?

## Some Observations on the Application of Truth Tests in Published Information Systems Research

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**Abstract** A motivation for the 1984 Manchester conference was to question the applicability of scientific truth tests to the study of socio-technical systems. While most IS researchers now agree that such tests are not appropriate, or at least are not always appropriate, the debate on the use of alternatives continues. This paper examines several truth tests applied to two truth statements in one piece of published research. Since the paper was published in a mainstream IS journal, it is argued that the standard of truth tests applied to this paper is indicative of the standard of truth tests acceptable within the IS community.

It is observed that different standards of truth test are applied, for different purposes, at different stages of the review process, reflecting the different purposes and standards of the truth statements made. Whereas the truth tests applied to the first truth statement (an inductive statement reporting the findings of the research) can be read through the text, those applied to the second truth statement (a deductive statement seeking to generalize these research findings) cannot. The observed differences in the application of internal and external validity tests point to the need for greater transparency in the application of this (second) type of truth test to better inform authors, reviewers, and readers alike; thereby improving the quality of truth statements made and of resultant publications.

**Keywords:** Habermas; truth; justification; fallibility, generalizability

## 1 INTRODUCTION

Published research includes multiple truth statements—statements which purport to represent things as they are in the real world. In accepting a paper for publication,

reviewers and editors also accept that the truth statements it makes are true (since we would not knowingly accept any statement that we believed to be false). But how may we know the truth?

Habermas (2003) argues that we cannot, or at least we cannot know a real, absolute, and objective truth. Such truth exists but we do not have unmediated access to it. Rather, our concept of truth is filtered through experience and language. Even when we feel a truth, intuitively, in our everyday coping with the world—“we do not walk onto any bridge whose stability we doubt”—we cannot presuppose this truth to be unconditionally valid, since its justification is rooted in language and discourse. The objects we refer to may fail to meet the descriptions we associate with them. Even where there is a correspondence between our statements and the state of affairs that actually obtains, our descriptions can only be established by reference to other statements, which themselves are inconclusive and problematical. Our statements are linguistically determined and therefore fallible. Truth and fallibility are two sides of the same coin.

However, fallibility does not preclude knowledge, but only moderates it. Habermas distinguishes between the objective validity of a statement (*Gültigkeit*) and its *de facto* “validity for us” (*Geltung*). While the former remains elusive, the latter is accessible and assertible through our (shared) sense of normative rightness. What is true is distinct from what we hold to be true but objective validity and normative validity are interconnected. Although Habermas has now rejected his earlier concept of a consensus theory of truth—a proposition is true because it is true in the real world and not because we agree that it is true—argumentation (and consensus) remains the only valid means of justifying a truth—“truth statements that have been problematized cannot be tested in any other way.”

For all practicable purposes, then, the truth statements we make, justify, and test are fallible and, because truth (or normative rightness) is established through discourse, there are degrees of fallibility. All truth statements will not be made to the same standard, all justifications will not be equally convincing, and all tests will not be universally applied. But what is the truth for us? Which truth test should be applied, and when? What is the relationship between the acknowledged fallibility of a truth statement and the justification of it?

These questions are important in academic publishing because their resolution determines not only the standing of a particular journal but, in aggregate, the standing of the entire subject discipline. At a time when the core values of IS are once again being questioned, consensus on what constitutes legitimate truth statements has never been more important, nor elusive. Precisely because academic publishing is so obviously removed from Habermasian conditions of ideal discourse, there is a need to address such questions, and thereby make the reviewing process more explicit and transparent. This paper is presented as a modest contribution to the necessary debate.

## 2 BACKGROUND

In 1975, Fred Brooks asked, “Who shall be the Aristocracy?” Brooks was interested in whether or not architects or engineers would be the aristocracy of systems development. In 1997, we posed the same question in relation to multimedia systems

development. Would software engineering or graphic design emerge as the dominant paradigm? In order to answer this question, we undertook a study of multimedia development projects, interviewing 26 designers from 15 companies, over a 2 year period. Based upon a small pilot study and our knowledge of the literature, as well as personal experiences, we initially identified two dominant paradigms in multimedia systems development and then sought to prove that these paradigms did in fact exist. Data was collected mostly through interviews but also through observations and documentary sources. Eight graphic design and four software engineering texts were also examined. Data were analyzed using a variety of content analysis techniques drawn from Miles and Huberman (1994). The objective of the research was to identify distinct communities within multimedia systems development by identifying elements of Kuhn's disciplinary matrix.

We reported early outcomes of this research at the European Conference on Information Systems in Cork, Ireland (Gallagher and Webb 1997) and were sufficiently encouraged to develop a paper for journal publication in *European Journal of Information Systems* (Gallagher and Webb 2000). The major truth statements made in both papers are conveniently set out in the abstract to the second paper. For the purposes of this analysis, and in the interests of parsimony, these have been collapsed from four to two, one of each type of truth statement identified.

### 3 OBSERVATIONS

#### 3.1 Truth Statement 1 (TS1)

*We have identified two [Kuhnian] paradigms in Multimedia systems development based on the software engineering and graphic design approaches.*

This statement is immediately but only referentially substantiated as previous research is cited (Gallagher and Webb 1997). In that paper, the identification of paradigms is based on the analysis of a small number of interviews (six) with multimedia designers. There is no convincing evidence that such paradigms exist. Rather, the identification is based on the collection and categorization of quotations which are themselves informed by prior assumptions and prejudices that a dichotomy exists between graphic design and software engineering approaches. In fairness, the 1997 paper is clearly a report of some exploratory work, a pilot study, written in the context of ongoing research into the phenomenon, which was then being developed to provide the very kind of validation missing. Thus we can say that TS1 holds up because (1) it is established both referentially (in the literature) and anecdotally (six interviews) that there is some basis for making the statement in the first place and (2) the statement is established empirically in the 2000 paper, as follows.

1. Figure 1 in the 2000 paper (p. 62) sets out the number of distinct (common) and non-distinct (or non-common) elements found in the analysis of 16 interview transcripts. Although 67 elements are common across both disciplines, suggesting

non-distinct communities, 58 elements for software engineering and 54 elements for graphic design are identified as non-core elements (NCEs). Of these, 15 for each community achieved a consensus of 50 percent or greater (the element was identified in at least seven of the 14 sources used).

2. There are four pages of appendices listing each type of element—symbolic generalization, beliefs, values, exemplars—for each discipline, giving a measure of the confidence one can have in the element (the type and number of sources overall and, for each element, the number of sources in which it was found). This is immediately helpful to the reader as it provides further evidence that two paradigms do exist, and importantly provides some transparency for the research process, increasing the reader’s confidence in the results.

So far so good. The first truth statement is clearly set out and is evidently supported by the data. The remainder of the paper seeks to establish a practical application for the findings substantiating and leading to Truth Statement 1, that two distinct communities of software engineering and graphic design exist within multimedia systems development. This is not so successful.

### 3.2 Truth Statement 2 (TS2)

*The resulting paradigms provide a useful framework from which to inform methodological development within the multimedia field.*

The paper purports to demonstrate this through the introduction and discussion of two concepts from the literature: method evaluation and method integration. While a prima facie case is made for the use of these two concepts and their application to the findings of this research, no test of applicability or value is offered or given.

Table 4 in the 2000 paper (p. 65) purports to show how this research maps onto the concepts. It is argued that the “common elements can act as the basis of common criteria by which to judge methods” (p. 67) —as in feature analysis. In fact, it is here (and only here) that the word *framework* in Truth Statement 2 is elaborated in any way.

Feature analysis, therefore, provides the mechanism to determine which method offers greatest support for those mandatory features ...common elements are features (or method requirements) that are acceptable to members of both communities...while NCEs [non-common elements] can be used to derive features/method requirements that are specific to each community (p. 65).

TS2 sets up three further truth statements: (1) feature analysis is a useful way of selecting/evaluating methods, (2) common elements are acceptable to both communities, (3) non-common elements mark out those features that should be specific (within the method) to each community.

Method integration is by means of a meta model, “a framework within each individual method can be integrated in a coherent manner,” or a method base from which

“method fragments are combined to produce a single method for a particular context.” Storyboarding is given as one example of a common denominator for integration (but this is neither developed nor tested). Assuming that methods can be successfully developed from such a methods base, what evidence is there that paradigmatic analysis can improve the process?

This is suggested but not demonstrated. Since method integration involves defining multiple viewpoints and then combining several viewpoints in order to construct a composite method for a particular situation, “the paradigms identified as part of this research programme can assist in the process of integrating several methods fragments because they effectively provide [such] viewpoints” (p. 66).

## 4 CONCLUSIONS

Habermas has recognized that “the truth may outrun justified belief”—truth is not defined or limited by our abilities to describe, justify, and test it, its meaning is not exhausted by consensus or normative rightness. Here we observed another kind of runaway truth—that of the truth statements made. As the paper progressed, these became less convincing, less well argued in reason or in data (or in both). The gap between the truth statement made and its justification is greatest when that statement attempts to induct or generalize the findings of the research. Here we have nested truth statements and recursive truth statements, truth statements based solely on other truth statements that are themselves problematical and inconclusive.

The justification of TS2 is not based on empirical data (as in the case of TS1) but rather on a series of assertions derived from the literature. While the interested reader can establish the *bone fides* of the referenced research, and make his or her decision as to its relevance in this context, in this paper, TS2—in the absence of evidential qualification—simply presumes the stated outcome. Given the space limitations of any published paper, this is perhaps understandable but such statements are inherently dangerous. Through repetition, under conditions of fallible discourse, they may become accepted truths that (erroneously) reflect upon the status of the original research and that (inappropriately) influence future research directions.

One interpretation of the observations made in this paper is that the reviewers and editors of *European Journal of Information Systems* are appropriately applying truth tests to truth statements, since they would not otherwise accept TS2 under the same conditions of justification applied to TS1. This interpretation is based upon two presumptions: (1) that TS2 is different from TS1 in ways that warrant a different justification and (2) the testing of that justification is qualitatively different from the testing of TS1, i.e., the standards of proof—or acceptability of the truth for us—in this instance, are different from the standards of truth applied to TS1. Acceptance of this interpretation is good news for the IS research community, or the European IS research community to be exact, since Lee and Baskerville (2003) suggest that in many top U.S. journals, tests of acceptability are inappropriately applied and “generalizations are sometimes taken to be proven statements rather than taken as well founded but as yet untested hypotheses” (p. 224).

Yet if we accept different types of truth statements and different types of truth tests, then we need also to know exactly what those tests are, as well as when and how they

should be applied. While in the matter of TS1 these are accepted and asserted (through canons of positivist or interpretivist research), in the matter of TS2 they are not. What do we mean, for example, by *well founded*? It is a truism (but not necessarily true) that although not all truth statements are generalizations, all generalizations are truth statements and it is these that continue to be the least understood and most contentious.

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