**Tolerating Inconsistency**

*Best of ICSE ‘91*

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http://spoke.compose.cs.cmu.edu/ser01/

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### Pro-forma abstract for whole paper

**RS: Radical solution**

A radical solution to the problem of data inconsistency is described, based on flagging inconsistencies rather than prohibiting them. In comparison with strict enforcement of specifications and invariants it offers the ability to allow the system to process unrelated data while deterring the use of the inconsistent portion of the data, which have been demonstrated in preliminary tests, but it leaves a number of side effects to be addressed including good ways to resolve the inconsistencies. Strategies are suggested for addressing these side effects.

- **Question:** Feasibility — Is it possible to tolerate inconsistency without losing benefits of specification?
- **Result:** Technique based on guarded commands
- **Prototype implementations**
- **Validation:** Implementation and evaluation: Discuss how example runs in prototype implementation

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### The argument of the paper

- **Before**
  - A+B=C
  - Pat and Lou must coordinate changes, or else...
  - A+B=C, but <Ai, Bi, Ci> needs fixed

- **With Pollution Markers**
  - If not A+B=C, flag problems!!
  - A+B=C, but <Ai, Bi, Ci> needs fixed!!

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### Validation

- Showed two transformations of an invariant
- Asserted the existence of an implementation
- Argued the benefits
Impact

- NEC shows 49 citations, including:
    > Gianpaolo Cugola, Elisabetta Di Nitto, Alfonso Fuggetta and Carlo Ghezzi... (14 citations)
    > “As for the general issue of tolerating and supporting inconsistencies, pioneering work was described by Balzer”
  - A Framework for Multi-Valued Reasoning over Inconsistent Viewpoints (2001)
    > Steve Easterbrook, Marsha Chechik (8 citations)
    > “Narayanaswamy and Goldman describe an incremental inconsistency handling solution based on announcing and interleaving proposed changes, while Balzer introduces the notion of pollution markers to flag portions of program code that contain inconsistencies which can be circumvented in order to continue development.”

Technology Maturation Studies

- Goal is coordinated set of papers with overview
- Papers should survey both the technology and its maturation
- Should we have intermediate deadline for drafts?
  > Probably before Thanksgiving to provide some turnaround time
- What about the research-plan projects?
  > Integrate in the technology maturation studies>