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Programming language processors — Test methods — Guidelines for their development and acceptability

Processeurs de langage de programmation — Méthodes d'essai — Lignes directrices pour leur élaboration et acceptabilité

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

The main task of ISO technical committees is to prepare International Standards. In exceptional circumstances a technical committee may propose the publication of a technical report of one of the following types :

— type 1, when the necessary support within the technical committee cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development requiring wider exposure;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical reports are accepted for publication directly by ISO Council. Technical reports types 1 and 2 are subject to review within three years of publication, to decide if they can be transformed into International Standards. Technical reports type 3 do not necessarily have to be reviewed until the data they provide is considered no longer valid or useful.

ISO/TR 9547 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

This type 3 Technical Report has been prepared to provide guidelines for those developing test methods for programming languages and also to aid those developing the programming languages themselves. It should facilitate the preparation of specific test methods which will help implementors to produce standard-conforming language processors, thereby benefitting end users.

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0. INTRODUCTION

The programming language area is a living topic: new languages are developed, old ones are revised. In those two cases, conformity requirements should not be forgotten; therefore, test considerations should be included in the development of language standards and their revisions.

The aim of this document is to provide guidelines for the development of a test method based on a set of test programs and precise steps that should be taken in order for a test method to get formal approval from ISO. These guidelines should be read in conjunction with a given language standard so as to produce a specific test method for programming language processors.

These guidelines are written for test method developers and for those who will approve these test methods in ISO. The availability of specific test methods will help implementors in producing standard conforming language processors, thereby benefiting end users.

When reading these guidelines, it should be borne in mind that programming language standards have not yet reached a level of precision and completeness to allow conformity tests to be produced for every aspect and feature of a language described in a progamming language standard. Testing issues are rarely the primary objective of standardization committees, and this may cause problems in applying these guidelines strictly to any given programming language standard.

1. SCOPE AND FIELD OF APPLICATION

These guidelines describe a methodology for determining whether a programming language processor possesses the required characteristics stated in the International Standard for the particular programming language for which it is intended.

Assessment of conformity of a language processor can be carried out with the "Test Suite Methodology". Other methodologies are not excluded but are not described here.

2. DEFINITIONS

For the purpose of these guidelines, the following terms apply.

2.1 CONFIGURATION : host and target computers, any operating system(s) and software used to operate a processor.