Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN ANDREW BRODSKY, GARY C. DONEY,
DIPAYAN GANGOPADHYAY, ALEXANDER GENNADIEVICH GLEBOV,
MICHAEL MORRIS GOLDING, TIMOTHY JAMES GROSE,
REBECCA MEI-HAR LAU, SUBRATA MITRA
and RAJENDRA BHAGWATISINGH PANWAR

Appeal No. 2002-0364
Application No. 08/951,812

ON BRIEF

Before THOMAS, KRASS and BLANKENSHIP, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 36-65.

The invention is directed to the modeling of an object-oriented system. In particular, a reference-based association relating first and second classes is created by specifying a reference attribute in the first class corresponding to the second class, wherein the reference attribute in the first class includes a type and cardinality. Objects from the first and second class are instantiated and objects of the first class are associated with objects of the second class using the reference attribute, wherein the type included in the reference attribute indicates that only objects instantiated from the second class can be connected to the objects instantiated from the first class, and the cardinality included in the reference attribute indicates how many objects from the second class can be connected to the objects of the first class. This is said to maintain consistency between the classes and the objects in order to provide an exact execution behavior for the objects instantiated from the classes.

Representative independent claim 36 is reproduced as follows:

36. A computerized method for modeling an object-oriented system, comprising:

(a) creating a reference-based association relating first and second classes by specifying a reference attribute in the first class corresponding to the second class, wherein the reference attribute in the first class includes a type and cardinality;

(b) instantiating one or more objects from the first class and one or more objects from the second class; and

(c) associating one or more of the objects of the first class to one or more objects of the second class using the reference attribute, wherein the type included in the reference attribute indicates that only objects instantiated from the second class can be connected to the objects instantiated from the first class and the cardinality included in the reference attribute indicates how many objects from the second class can be connected to the objects of the first class, thereby maintaining consistency between the classes and the objects in order to provide an exact execution behavior for the objects instantiated from the classes.

The examiner relies on the following references:

James Martin, Principles of Object-Oriented Analysis and Design (The James Martin Books, 1993 Prentice-Hall, Inc.) (Martin)

Bjarne Stroustrup, The Design and Evolution of C++ (1994 Addison-Wesley Publishing Co.) (Stroustrup)

Rational Rose C++ version 4 (1996 Rational Software Corp.)

Rational Rose C++ 4.0 contains a *document set* containing the following documents:

- Round Trip Engineering with Rational Rose/C++ (Rat C++)
- Using Rational Rose 4.0 (Rat-UR)
- Extensibility Guide (Rat-EG)
- UML, Boock & OMT Quick Reference for Rational Rose 4.0 (Rat-QR)

Claims 36-65 stand rejected under both 35 U.S.C. § 102, as anticipated by Martin, and under 35 U.S.C. § 103, as unpatentable over Rational Rose in view of C++.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

We turn, first, to the examiner's rejection of the claims under 35 U.S.C. § 102.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner applies Martin as an anticipatory reference against all of the instant claims. Martin is a textbook comprising more than 400 pages. As for the specifics of the

instant claims, taking, for example, independent claim 36, the examiner cites pages 81-100 as disclosing the claimed creation of a reference-based association relating first and second classes, cites pages 383-388 for a teaching of cardinality, cites pages 18, 20, 83 and 391-392 for a showing of instantiating one or more objects from the first class and one or more objects from the second class, and then cites these same pages, as well as pages 133-139, for the elements of paragraph c of claim 36.

We have carefully reviewed the portions of Martin cited by the examiner and we are unconvinced that these disclosures anticipate the instant claimed invention. While Martin is an excellent, over-all text for explaining many of the intricacies of object-oriented technologies, and providing definitions of terms and general examples of some of those terms, we have not been able to discern anything therein, at the portions cited by the examiner, which meets the instant claim language.

While pages 81-100 of Martin discuss relationships among object types, we find nothing therein, and the examiner has pointed to nothing, which would indicate the creation of a reference-based association relating *first and second classes*, as claimed, wherein the reference attribute specified in the *first*

class corresponds to the *second* class and wherein the reference attribute in the *first* class includes a type and cardinality. It is true that Martin discusses *cardinality*, in general, e.g., at page 83, but there is no indication, within the cited portion of Martin, that this cardinality is included in a reference attribute of a first class and that this reference attribute corresponds to a second class, as claimed.

We also do not find, and the examiner has not particularly pointed to anything in Martin which discloses step c of instant claim 36. If there is no teaching of a first and second class in Martin, it seems to follow that there is no teaching of "associating" objects of the first class to objects of the second class using the reference attributes, as claimed.

While there may, theoretically, be a way for the skilled artisan to reach the instant claimed subject matter from a reading of, and application of the principles discussed in, the Martin textbook, such a conclusion is speculative, at best, and a conclusion of anticipation under 35 U.S.C. § 102 may not be based on speculation. It was up to the examiner, in the first instance, to *specifically* point out where each and every step and

element of the instant claims is taught by Martin. Since, in our view, the examiner has not successfully done this, we will not sustain the rejection of claims 36-65 under 35 U.S.C. § 102.

The examiner also rejects all of the claims under 35 U.S.C. § 103 as unpatentable over Rational Rose in view of programming language C++.

Using independent claim 36, again, as an example, the examiner cites chapters 4 and 6, pages 39 and 97, of Rational Rose for a teaching of element a of the claim, pages 19 and 56 of C++ for the teaching of element b (instantiating) and Rational Rose, page 46 and C++, pages 19, 53 and 56 for a teaching of element c.

The examiner contends that while Rational Rose anticipates the limitations of instantiating objects and other runtime behavior, it does not actually perform the runtime operations. Rather, it is C++ that actually performs the runtime limitations. Thus, the examiner concludes that it would have been obvious “to combine the teachings of the product Rational Rose C++ version 4.0 with the compiler C++ because in software development the '. . . process begins with requirements definition and analysis,

followed by the development of an initial architecture.' (RAT-C++, page 1)" (answer, page 22).

We will not sustain the rejection of claims 36-65 because the examiner's rationale is not specific enough to warrant a prima facie showing of obviousness of the instant claimed subject matter. While the examiner broadly points to references dealing with object-oriented code technology (and even cites Martin in the responsive section of the answer though Martin forms no part of the rejection under 35 U.S.C. § 103), having much of the same language as is in the instant claims, the examiner never *specifically* points out where, in the references, the very specific claim limitations are alleged to be taught.

For example, we have reviewed pages 39 and 97 of Rational Rose, as well as cited Chapters 4 and 6. Yet, we find no reference to, or teaching of, "creating a reference-based association relating first and second classes by specifying a reference attribute in the first class corresponding to the second class, wherein the reference attribute in the first class includes a type and cardinality" or of "instantiating one or more

objects from the first class and one or more objects from the second class," as claimed.

A mere class diagram (page 39 of Rational Rose) that contains icons representing classes, showing general relationships between classes (association, inheritance, has and uses), and a general discussion of interaction diagrams and collaboration diagrams (page 97 of Rational Rose) do not disclose or suggest "creating a reference-based association relating first and second classes by specifying a reference attribute in the first class corresponding to the second class, wherein the reference attribute in the first class includes a type and cardinality" or of "instantiating one or more objects from the first class and one or more objects from the second class," as claimed. Rational Rose says nothing about "a reference attribute" and how the reference attribute of a first class corresponds to a second class.

Similarly, C++ does not disclose or suggest this claim limitation and does not provide for the deficiencies of Rational Rose.

Since, in our view, the examiner has failed to present a prima facie case of obviousness with regard to the instant

claimed subject matter, we will not sustain the rejection of claims 36-65 under 35 U.S.C. § 103.

We have not sustained the rejection of claims 36-65 over either 35 U.S.C. § 102 or § 103. Accordingly, the decision of the examiner is reversed.

REVERSED

JAMES D. THOMAS Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	

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