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**Datasheet for the decision
of 10 September 2015**

Case Number: T 0716/12 - 3.5.05

Application Number: 06004534.1

Publication Number: 1701247

IPC: G06F3/16

Language of the proceedings: EN

Title of invention:

XML-based architecture for controlling user interfaces with contextual voice commands

Applicant:

SAP SE

Headword:

Controlling user interfaces with contextual voice commands/SAP

Relevant legal provisions:

EPC 1973 Art. 56

EPC Art. 123(2)

Keyword:

Amendments - added subject-matter (no)

Inventive step - after amendment - (yes)

Decisions cited:

Catchword:



**Beschwerdekammern
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Chambres de recours**

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Case Number: T 0716/12 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 10 September 2015

Appellant:
(Applicant)

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 24 October 2011
refusing European patent application
No. 06004534.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair A. Ritzka
Members: M. Höhn
G. Weiss

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division, posted on 24 October 2011, refusing European patent application No. 06004534.1 on the grounds of Article 123(2) EPC and lack of inventive step (Article 56 EPC 1973) with regard to prior-art publications:
- D1: MICROSOFT: "Microsoft Speech SDK Version 5.1", 8 August 2001, pages I1-I3, G1-G42, and
D4: EP 1246086 A2.
- II. The notice of appeal was received on 20 December 2011. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 23 February 2012. The appellant requested that the appealed decision be set aside and that a patent be granted on the basis of the main request or the auxiliary request, both filed with the statement setting out the grounds of appeal. Oral proceedings were requested on an auxiliary basis.
- III. With a communication dated 18 June 2015 the board summoned the appellant to oral proceedings on 10 September 2015. In an annex to the summons the board expressed its preliminary opinion that the main request did not fulfil the requirements of Article 123(2) EPC and that the auxiliary request lacked clarity (Article 84 EPC 1973) and inventive step (Article 56 EPC 1973). Prior-art publication D10 (US 6742021 B1) was introduced by the board of its own motion according to Article 114(1) EPC 1973.
- IV. By letter dated 10 August 2015 the appellant submitted a set of claims according to an amended main request

supported by arguments in favour of clarity and inventive step.

V. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 19 according to the main request submitted at the oral proceedings on 10 September 2015 as "Amended Main Request". The main request filed with letter dated 10 August 2015 and the auxiliary request filed with letter dated 16 December 2011 were withdrawn.

VI. Independent claim 1 according to the main request reads as follows:

"1. A voice extension module (125) for voice-enabling a user interface (100, 700) comprising:
a speech recognition engine (225);
an XML configuration repository (205) that includes one or more XML files specifying one or more voice commands for signaling for execution of one or more semantic operations that may be performed using a first user interface;
a preprocessor (210) that is configured to register with the speech recognition engine (225) the one or more voice commands; and
an input handler (230) that is configured to receive a first voice command and to communicate with the preprocessor (210) to execute a semantic operation from the one or more semantic operations that may be performed using the first user interface, wherein the first voice command is one of the one or more voice commands registered with the speech recognition engine (225) by the preprocessor (210), and wherein the first voice command signals for execution of the semantic

operation;
characterized in that
the voice extension module (125) further comprises an
error handler (235) which is configured to sequentially
(i) prompt the user for additional information needed
to execute the identified semantic operation (620),
when the recognized voice command sufficiently
identifies a semantic operation, but the recognized
voice command does not adequately enable the semantic
operation to be executed; and
(ii) handle any errors other than additional
information needed to execute the semantic operation in
the execution of the identified semantic operation
(630), wherein the error handler (235) corrects the
errors other than additional information needed to
execute the semantic operation to enable execution of
the identified semantic operation to continue and to
complete, or determines that the error other than
additional information needed to execute the semantic
operation may not be recovered from, so that the error
handler (235) stops execution of the identified
semantic operation and undoes any changes made to the
user interface (100, 700) as a result of a portion of
the semantic that has already been executed, so that as
a result, the user interface (100, 700) is returned to
the same state as before execution of the identified
semantic operation began."

Independent claim 11 is directed to a corresponding
method.

VII. Oral proceedings were held on 10 September 2015. After
due consideration of the appellant's arguments, the
chair announced the decision.

Reasons for the Decision

1. Admissibility

The appeal complies with Articles 106 to 108 EPC (see Facts and Submissions, point II above). It is therefore admissible.

2. Article 123(2) EPC

2.1 The features introduced by amendment during oral proceedings are considered to be originally disclosed for the following reasons.

2.2 Figure 6, steps 620 and 630 of the application provide a direct and unambiguous disclosure of steps (i) and (ii) of claim 1 being carried out sequentially.

2.3 Step (ii) of claim 1 refers to "any errors other than additional information needed to execute the semantic operation". An antecedent basis for this feature is found on page 18, line 7 of the application as filed where there is a reference to "other faults" which, in contrast to the errors referred to in the sentences before, hence do not comprise a need for additional information.

2.4 Similar arguments apply, *mutatis mutandis*, to corresponding independent claim 11.

2.5 Independent claims 1 and 11 therefore fulfil the requirements of Article 123(2) EPC.

3. Clarity - Article 84 EPC 1973

Since the feature objected to for lack of clarity has been deleted from claims 1 and 11, the requirements of Article 84 EPC 1973 are fulfilled.

4. Article 56 EPC 1973 - Inventive step

4.1 It was undisputed that D1 is to be regarded as the closest prior art. D1 discloses the following features of claim 1:

- a voice extension module for voice-enabling a user interface (page I-1, lines 9 to 11, "SAPI... for an application to use speech recognition");
- a speech recognition engine (page I-3, line 4, "speech recognition engines");
- an XML configuration repository that includes one or more XML files specifying one or more voice commands for signalling for execution of one or more semantic operations that may be performed using a first user interface (page I-3, lines 23 to 24, "an ISpRecoGrammar, which essentially indicates what type of utterances to recognize...", page G-1, lines 4 to 5, "the context-free grammar in SAPI 5 defines the structure of grammars and grammar rules using the XML tagging language", and page G-39, lines 20 to 29);
- a preprocessor that is configured to register with the speech recognition engine the one or more voice commands (page I-3, line 23, "a speech application must create, load and activate an ISpRecoGrammar"); and
- an input handler that is configured to receive a first voice command and to communicate with the preprocessor to execute a semantic operation from the one or more semantic operations that may be performed using the first user interface, wherein the first voice

- command is one of the one or more voice commands registered with the speech recognition engine by the preprocessor, and wherein the first voice command signals for execution of the semantic operation (page I-3, lines 31 to 33 and page G-9, lines 12 to last).
- 4.2 The subject-matter of claim 1 differs from the disclosure of D1 in the features of the characterising portion.
- 4.3 The board agrees with the decision under appeal that the underlying technical problem to be solved can be regarded as how to ensure that the voice command adequately enables the semantic operation to be executed.
- 4.4 The solution according to distinguishing feature (i) was known from the teaching of D10 (see in particular figure 3, query refinement logic 340 and figure 4, step 409 refine query; see also column 10, lines 45 and 46 "user's request may fail to specify enough information" and column 11, lines 51 and 52 "Step 409 detects that additional user input is needed to further refine the query...").
- 4.5 However, D10 neither discloses nor renders obvious the solution according to distinguishing feature (ii).
- 4.6 Prior-art publication D10 discloses error handling (see column 10, lines 66 and 67; see in particular figure 4, step 407 checking the spoken user input for deficiencies). D10 also mentions the option of stopping the operation in case of deficiencies (see column 11, lines 1 and 2).

In contrast to the query refinement according to step 409 in figure 4 of D10, step 407 dealing with deficiencies detects whether no obvious problems occurred (see column 11, line 47; figure 4, step 407). However, as can be seen from figure 4 of D10, dealing with those deficiencies merely involves soliciting additional user input (see step 412), i.e. it is again a matter of dealing with errors requiring additional information to execute the semantic operation to enable execution of the identified semantic operation. This is in contrast to what is claimed according to distinguishing feature (ii) of claim 1.

- 4.7 D10 does not explicitly disclose an undo function. The board, however, agrees with the decision under appeal in this regard that the provision of a well-known undo function does not require inventive skills, since the principle of an "undo" was commonly known in the art of electrical engineering, in particular when dealing with error correction, and no special technical advantages are achieved beyond the normal effects that could be expected. No technical hurdles are identifiable which would require inventive activity to overcome.

However, D10 does not teach how to deal with errors other than those requiring additional information to execute the semantic operation and, hence, does not render feature (ii) according to claim 1 obvious.

5. The decision under appeal was further based on prior art D4. The board agrees with the decision that the claimed solution according to distinguishing feature (i) is rendered obvious starting from D1 with regard to the teaching of D4, which discloses determining that additional information is needed to execute the semantic operation and prompt for additional

information that further specifies the semantic operation that is executed in response to the voice command (see e.g. document D4, figure 2, steps S17, S18 and S22, and [0098], in particular lines 47 to 57 "... determine, in determination stage S17, whether the query is sufficiently strong to obtain a useful result. If not, further data is obtained by asking a further question of the enquirer in a stage S18. If the data is judged to be sufficient then it is used to query the database in stage S20. If the database does not give a sufficient output in determination stage S22, then the procedure continues to S18 and asks the user a further question, preferably judiciously chosen to enable the system to discriminate between multiple search results").

- 5.1 However, D4 also does not teach how to deal with errors other than those requiring additional information to execute the semantic operation and, hence, does not render feature (ii) according to claim 1 obvious.
6. The further prior art on file is more remote from the claimed subject-matter and therefore also does not render distinguishing feature (ii) according to claim 1 obvious.
7. In the decision under appeal it was further argued with regard to then distinguishing feature (ii) that coping with errors in the execution of programs, such as the user interface and the semantic operations of document D1, was part of the customary practice of persons skilled in the art, e.g. to avoid unpredictable behaviour by the programs.
- 7.1 In particular, it was argued that exception handling was well-known in the field of computing to detect and

correct errors in the execution of programs to enable execution of the programs to continue and complete, and/or to determine that an error might not be recovered from, and to stop execution of the program and to return the program to a previously saved state.

The skilled person would therefore naturally implement this well-known measure to manage any errors in the execution of the user interface and the semantic operations of document D1. The skilled person would thereby arrive at the claimed solution corresponding to then distinguishing feature (ii) without the need for an inventive step.

- 7.2 The board notes that claim 1 underlying the decision under appeal was amended during appeal proceedings such that distinguishing feature (ii) of present claim 1 addresses additionally the error handling of errors other than additional information needed to execute the semantic operation, in contrast to feature (ii) of then claim 1. The handling of errors other than additional information needed to execute the semantic operation was not addressed in the decision under appeal.

Moreover, the appellant has plausibly argued that, although exception handling might have been known in general, it was not known in this specific context. Indeed, none of the ten prior-art documents on file disclosed exception handling in the present context of errors other than additional information needed to execute semantic operation. Therefore, the board is satisfied that the argument referred to in paragraph 7.1 above does not apply to present distinguishing feature (ii).

8. Similar arguments apply, *mutatis mutandis*, to corresponding independent method claim 11.
- 8.1 Independent claims 1 and 11 therefore involve an inventive step (Article 56 EPC 1973). The dependent claims are supported by the independent claims 1 and 11 to which they refer and therefore also involve an inventive step.
- 8.2 The set of claims according to the main request therefore fulfils the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent on the basis of claims 1 to 19 according to the main request submitted at the oral proceedings on 10 September 2015 as "Amended Main Request", and of a description and figures to be adapted.

The Registrar:

The Chair:



K. Götz-Wein

A. Ritzka

Decision electronically authenticated