

# T 0817/16 (Google): Searching for a technical effect

Kluwer Patent Blog  
April 18, 2019

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Please refer to this post as: Michael Vallance, 'T 0817/16 (Google): Searching for a technical effect', Kluwer Patent Blog, April 18, 2019, <http://patentblog.kluweriplaw.com/2019/04/18/t-081716-google-searching-for-a-technical-effect/>

Last week the Board of Appeal issued a decision holding that Google's patent application 04784004.6 was unallowable on the ground of lack of inventive step. Amongst other things, the decision contains useful guidance relevant to applications containing a mixture of technical and non-technical subject matter. The take-homes from the decision are as follows:

## 1. A chain of effects cannot be used as evidence of a technical effect if one of the links between the effects is not technical

Google's invention was directed towards a method for scoring a document on the basis of history data that reflects the frequency at and the amount by which the content of the document changes over time. Although not claimed, these scores could be used to improve the relevance of any search results returned in response to a search query.

Google argued that providing good scores qualified as a technical effect because it improved the search results returned by the search engine, which lead to in a reduction in the number of search queries and so a saving of resources. However the Board found that this reduction in the number of search queries and the corresponding saving of resources did not qualify as a technical effect of the (improved) recommendations, as they depended on subjective choices made by the user. Such choices formed a non-technical link in the chain of effects. Claim 1 was also silent on what the generated score is used for. Merely assigning a score to a document was not considered to provide a technical effect.

## 2. A method can be deemed inventive as a result of non-technical features

The Board concluded that the method steps recited by the claim were algorithmic in nature and so also non-technical. The only technical feature of the claim was the use of a computer. However this did not in itself mean that the method was not inventive. Consideration should instead be made as to whether the non-technical features, in the context of the invention, give rise to a technical effect.

## 3. Benchmark your invention

Google argued that claim 1 achieved a technical effect by scoring a document in a particularly resource-efficient manner. The objective technical problem therefore related to implementing a method of scoring a document in a memory-efficient manner. Such a problem assumes that the closest prior art is some other computer-implemented method directed towards scoring documents (in a less efficient manner).

However the Board argued that the closest prior art was instead a general purpose computing device. From this perspective, the process of scoring a document uses *more* resources than the prior art. In particular the Board stated:

Indeed, performing the method of claim 1 on a general-purpose computer necessarily uses more memory resources than not performing the method. What performing the method does achieve is a particular scoring of documents, but that is not a technical effect. It also causes - like any program execution - some usage of memory and processor resources

If more resources were used then no technical problem was solved and so the method lacked an inventive step.

Arguably the above rationale is akin to arguing that the most memory efficient process of operating a computer is not to operate the computer at all. It demonstrates the importance of "benchmarking your invention" by identifying a closest prior art within the application from which any advantageous technical effects achieved by the invention follow.

## 4. Natural language processing is perceived as being non-technical

The Board stated that a physical effect achieved by the invention would be regarded as a technical effect for the purpose of assessing inventive step if the non-technical features were based on technical considerations aimed at controlling that physical effect. Google's invention relied on the use of "term vectors" to obtain the alleged reduction in resource consumption. The question was therefore asked whether this use of term vectors was based on technical considerations aimed at controlling this effect.

Term vectors are used within the field of natural language processing to represent the content of text documents as vectors of word frequencies. The frequency and the amount of changes between two versions of a document can therefore be monitored by comparing the respective term vectors (rather than the entire documents).

One might consider such a process to involve technical considerations. However, the Board found otherwise:

Compared with techniques for lossless data compression, it is less evident that the idea of reducing a text document to a term vector to lower memory requirements while still being able to determine the amount of changes between consecutive versions is technical. The concept of determining the semantic similarity between documents by means of term vectors belongs to the field of linguistics, which is a non-technical area falling under Article 52(2) EPC.

Unfortunately for Google natural language processing (or as the Board put it here "linguistics") is an example of one of the fields of research which the EPO has decided is non-technical (another notable example being machine learning). With reference to the CardinalCommerce decision [T1463/11](#), the Board stated:

A useful test for determining whether such technical considerations are present is to ask whether the nontechnical features would have been formulated by a technical person rather than by a non-technical person or persons

The Board then concluded that the idea to use term vectors to reduce the amount of data stored is one that the "notional computer programmer" would have had rather than being an idea formulated by a technical person. The implication here was that this idea did not involve technical considerations. It could be argued that this conclusion was essentially a consequence of the earlier decision to treat the field of the invention as non-technical.

## 5. Keep the discussion on the prior art

Despite their earlier conclusions the Board went on to consider, for sake of argument, the objective technical problem presented by Google.

It was agreed that the use of term vectors for comparing the semantic content of text documents was well known to the skilled person. The Board argued that in light of this, if the skilled person were attempting to solve the objective technical problem then the use of term vectors was an obvious solution to apply.

It is interesting to note that the Board drew this conclusion without identifying any prior art document providing either the motivation needed to arrive at the invention or illustrating that the claimed invention could have been arrived at based on common general knowledge alone. Seemingly it did not help Google's position that the application contained only a single reference to term vectors (as noted in the Board's decision). This placed Google in a squeeze between obviousness and sufficiency, with the question being "if the solution was not obvious then should it not deserve a more detailed discussion?"

Applicants should not be dissuaded from seeking patent protection in Europe for computer-implemented inventions on the basis that they are directed towards a non-technical objective. What is key at the EPO is whether the solution employed to meet this objective provides a credible technical effect over the prior art. As ever it is helpful here if a full discussion of the problem and the solution is included to the application. Sadly for Google this decision marks the end of the road for this particular application.