

A more intelligent approach to patent research.

When it comes to developing, maintaining, and protecting your innovations, LexisNexis has been there for you with the content and tools you need:

- **31 full-text patent authorities**—more full-text patent records than any other provider
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- **TotalPatent®**—unmatched access to enhanced, first-level patent data and analytics, along with integration and linkages to other LexisNexis® products and services
- **PatentOptimizer™ drafting and analysis software**—a revolutionary approach to creating quality applications and analyzing issued patents and patent portfolios

LexisNexis® Semantic Search powered by PureDiscovery™ can help improve your search results by suggesting concepts that relate semantically to your search query.

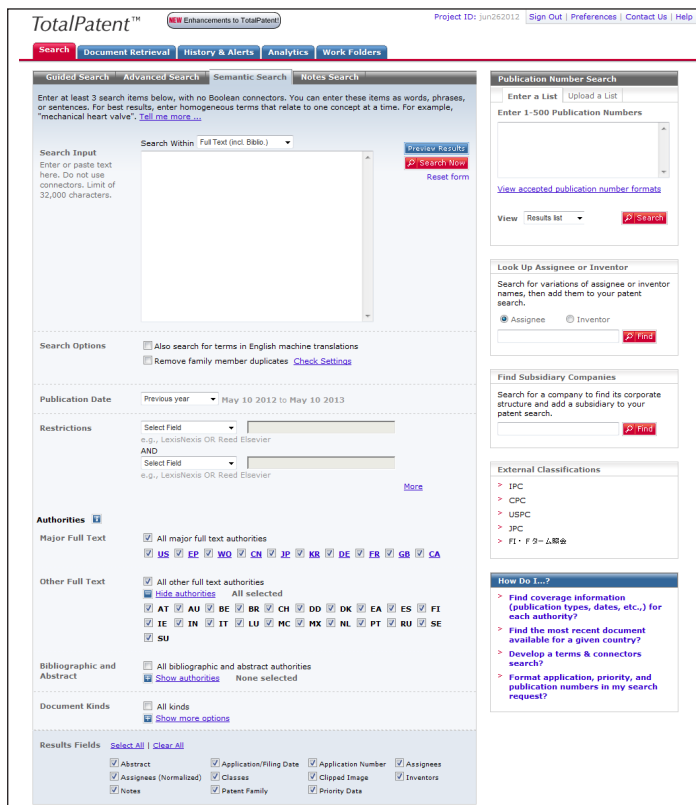
You get semantic search assistance but you're in control. Choose to let Semantic Search run without intervention or choose to modify the concepts. You can preview search results, review the suggested concepts, assign relative importance (weighting), eliminate concepts you don't wish to use, or even add more concepts of your own. It's all up to you.

Receiving the results of your semantic query is just the beginning. You can then choose to narrow your search results by interacting further with the concepts in the semantic query or by using Boolean search terms.

Semantic searching is enabled for TotalPatent, PatentOptimizer, all LexisNexis patent sources, all Elsevier journals, Research Disclosure, and select news sources like *The New York Times*®.

Semantic searching in TotalPatent®

When you select the **Search** tab and then the **Semantic Search** subtab, you'll see the following:



- Choose to search the full text of patents, or portions thereof, from the **Search Within** pull-down list.

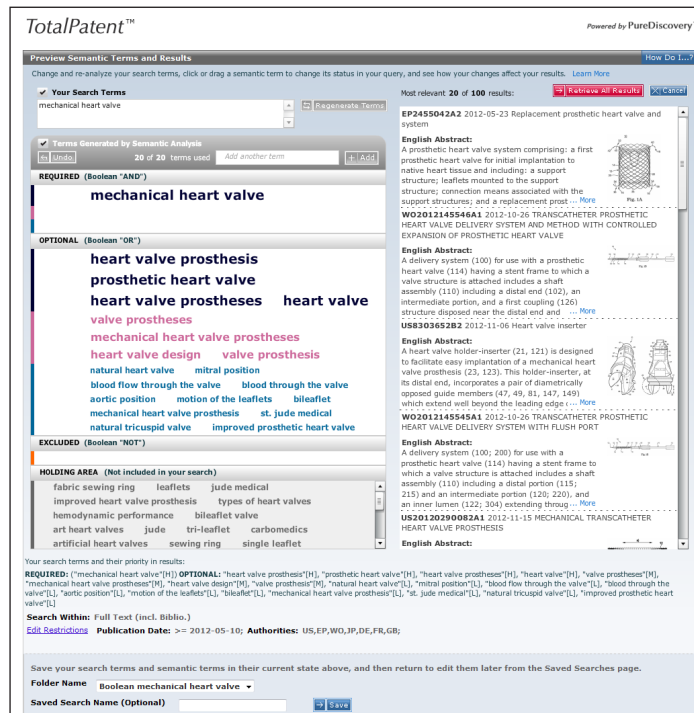
Enter at least three search terms or a phrase in the **Search Input** box, using no Boolean connectors. You can enter words, sentences or paragraphs. For best results, enter homogenous terms that relate to one concept at a time. For example:

ENTER: *mechanical heart valve*

Select date, segment, and other restrictions—you can choose which authorities or types to search—as desired.

- To run the search without reviewing and adjusting the search query analysis, just click **Search Now**.
- To review the semantic query, preview the top 20 search results, and adjust the semantic query if you choose before running the search, click **Preview Results**.

You'll see something like the following:



Concepts based on the search terms you entered appear on the left side of the screen in three boxes. Combined, the **Required** and **Optional** boxes contain the top 20 concepts—any concepts that appear in these two boxes are the terms that will be searched. The **Holding Area** box contains the next 30 concepts—ones you might want to consider including. Font size and color indicate the relative importance of each concept. There's also a box labeled **Excluded**—to which you can move any concepts you don't want to see in your search results.

A preview of the top 20 results of the semantic search, if you were to run it as is, appear on the right side of the screen. The total number of documents it would retrieve also appears. Together, they provide a very useful indication of relevance.

TIP: To view the entire abstract of any item in the results preview, just click the **More** link. To return to the original display, click the **Less** link.

You can move any concept from one box to another by clicking and dragging. You can change the relative weight of any concept in the **Required** or **Optional** box by clicking and dragging up or down within the box. Once you make any adjustments, the **Undo** button becomes active, the preview area grays out, and a **Refresh Preview** button appears. Click **Refresh Preview** to see how your results would change.

TIPS: Another way to change the weight of a concept is to click on it. A pop-up box appears. From there you can click the radio button to select **Required**, **Optional**, **Excluded**, or **Move to Holding Area** and use the slider to change priority for Required and Optional concepts. Then click **Apply**.

heart valve prosthesis

Status:

Required (Boolean "AND")

Optional (Boolean "OR")

Excluded (Boolean "NOT")

Move to holding area (do not include in search)

Priority in results:
(Required or Optional terms only)

HIGH
Give a high prominence in the search results

MEDIUM
Give a medium prominence in the search results

LOW
Give a low prominence in the search results

You can edit the date, segment, and other restrictions you selected previously. Just click the **Edit Restrictions** link near the bottom of the screen.

You can also save your search for future use. See the options for saving your search at the bottom of the screen.

To add a search concept of your own, type it in the **Add another term** box and click **Add**. It will appear in the **Required** box. You can then adjust its weight or move it to the **Optional** box.

TIP: There's a limit of 20 concepts for a search, so you may be prompted to delete one before adding your own.

Or, to go back and regenerate a whole new set of concepts, you can modify or replace your original search terms—they appear in the **Your Search Terms** box near the top of the screen. Then click **Regenerate Terms**. At that point, you can make adjustments as described above.

Once you're satisfied with your adjusted search concepts, click **Retrieve All Results**, which appears above the results preview. You'll see something like the following:

Notice that hits are highlighted in different colors based on weight.

- To narrow your search results, look at the top-right section of the screen:
 - If you want to use Semantic Search to narrow your results, click the **Using Semantic Concepts** check box. If you leave the box unchecked, your **Narrow Search** request will be Boolean.
 - Enter additional search terms in the **Narrow Search** box.
 - Click **Go**.

TIP: If you select **Using Semantic Concepts**, you'll have an opportunity to modify the semantic analysis of your new terms before running your **Narrow Search**.

Semantic searching from LexisNexis® PatentOptimizer™

You're drafting a patent application or analyzing an online patent retrieved from the LexisNexis® services. You've checked the document's claims and are viewing the related Claim Tree Hierarchy, displaying claim elements as desired. You want to search specific claims for related prior art.

The screenshot displays the LexisNexis PatentOptimizer interface. On the left, the 'Check Claims' pane shows a 'Claim Tree' with a hierarchy of elements for Claim 6, including 'front and rear stabilizing wings', 'placement channel', 'anchor', 'apparatus', 'front and rear bearing surfaces', 'front and rear outlets', 'movement', and 'side surface'. The main window shows a patent document with several claims, including Claim 5 and Claim 6. On the right, the 'Search Claims' dialog box is open, showing a 'Search Definition' and a 'Search Results' table. The table lists claim elements and their weights:

Set	Element	Incl	Excl	Weight
<input checked="" type="checkbox"/>	apparatus			3
<input checked="" type="checkbox"/>	front and rear bearing surfaces			3
<input checked="" type="checkbox"/>	outer bearing surface			3
<input checked="" type="checkbox"/>	bearing surface formed			3
<input checked="" type="checkbox"/>	bearing plate			3
<input checked="" type="checkbox"/>	anchor wing			3
<input checked="" type="checkbox"/>	opposing bearing			3
<input checked="" type="checkbox"/>	bearing anchor			3
<input checked="" type="checkbox"/>	bearing surface portion			3
<input checked="" type="checkbox"/>	opposed bearing surfaces			3
<input checked="" type="checkbox"/>	bearing surface located			3
<input checked="" type="checkbox"/>	bearing			3

- To begin searching the claims, select your first claim of interest and click **Search Claims**. The **Search Claims** pane will appear. The elements of the claim are extracted into the Search Definition dialog. You can drag and drop additional claims or elements from the **Claim References** field to the **Claim Elements** field.

You can eliminate common words within the terms that might cause imprecise results by clicking the **Filter Common** check box. Eliminated words will appear in **strikeout**.

- To select semantic search analysis, click **Apply Semantic Analysis**.

Concepts will appear in the field to the right of the **Claim Elements** field in order of the relative importance to be applied in your search query. Relative weight is indicated by the three columns appearing to the right of the term.

Weightings are as follows:

Include—the term must appear in any document in your search results.

High (3)—the term gets high prominence.

Medium (2)—the term gets medium prominence.

Low (1)—the term gets low prominence.

Exclude—means that the term is prohibited from appearing in any document in your search results (like a Boolean “AND NOT”).

- To select or deselect an individual semantic search element, click the check box next to it. (Deselecting will give the term a weight of "0.")

To deselect all elements listed, click **Deselect All**, useful when you wish to go on to select your terms one by one.

To require that a particular element appear in your search results, click the space next to the element under the **Incl** column.

To require that a particular element **not** appear in your search results, click the space next to the element under the **Excl** column.

To change the weight a particular element will be given in your search, click the number to the right of the element and enter a new number.

To add a term from the **Claim Elements** field to the **Semantic Analysis** list, highlight it and click the >> button.

TIP: There's a limit of 20 elements, so you may need to deselect element(s) before adding your own.

To remove deselected elements from the listing, click **Remove Unselected**.

To sort the semantic analysis elements once you've made adjustments, just click the column heading.

- To move between various iterations of your Semantic Analysis, click **Back**, **Refresh**, and **Forward**:



- To choose where to search, select either the **Patents & Tech Disclosures**, **Elsevier Journals**, **TotalPatent**, **Scopus** or **The Web** tab. Then click on your specific source or site choice.

Once you've made your selections, click **Search**.

Once you've run your search, all of the capabilities of the particular research source are available to you.

Semantic searching at *lexis.com*[®]

Semantic searching is enabled for all LexisNexis patent sources, all Elsevier journals, Disclosure full-text, and select news sources like *The New York Times*.

When you select a source or a combination of sources that is semantically enabled, you'll see the following:

The screenshot shows the Lexis search interface. At the top, there's a navigation bar with 'My Lexis', 'Search', 'Get a Document', 'Shepard's', and 'More'. Below that, a breadcrumb trail reads 'Legal > Area of Law - By Topic > Patent Law > Search Non-Patent Prior Art > Elsevier Full-Text Journals, All'. The main search area has a 'Search' box and a 'View Tutorial | Help' link. Under 'Broaden this search with additional sources', several checkboxes are visible, with 'Elsevier Full-Text Journals, All' checked. Below this, there's a section 'Select Search Type and Enter Search Terms' with buttons for 'Terms & Connectors', 'Natural Language', 'Easy Search™', and 'Semantic Search'. The 'Semantic Search' button is highlighted. A text box for entering search terms is present, with an 'Analyze Search Input' button to its right. Below the text box, there's a note: 'Enter or paste at least 3 search items, with no Boolean connectors. You can enter these items as words, sentences or paragraphs. For best results, enter homogenous terms that relate to one concept at a time. For example, "mechanical heart valve". Limit of 32,000 characters.' There are also sections for 'Restrict by Document Segment' and 'Restrict by Date'.

- Click the **Semantic Search** link that appears under **Select Search Type and Enter Search Terms**.
- Enter at least three search items in the **Enter Search Terms** field, using no Boolean connectors. You can enter these items as words, sentences or paragraphs. For best results, enter homogenous terms that relate to one concept at a time.

For example:

ENTER: *mechanical heart valve*

Select segment and/or date restriction if desired.

- To run the search without reviewing and adjusting the search query analysis, just click **Search Now**.
- To review and modify the semantic analysis before running the search, click **Analyze Search Input**.

Concepts based on the terms you entered appear in order of the relative importance to be applied in your search query. Font size and color indicate the importance of each word or phrase. Additionally, all terms are listed with their relative weightings below the diagram.

The screenshot shows the 'Analyze Search Input' page. At the top, there's a navigation bar with 'My Lexis', 'Search', 'Get a Document', 'Shepard's', and 'More'. Below that, a breadcrumb trail reads 'Legal > Area of Law - By Topic > Patent Law > Search Non-Patent Prior Art > Elsevier Full-Text Journals, All > Analyze Search Input'. The main search area has a 'Search' box and a 'View Tutorial | Help' link. Below this, there's a section 'To adjust a concept's weighting, click the concept name. To ignore a concept, clear the check box next to the concept.' There's a 'Hide Check Boxes/Update Display' button. A list of concepts is shown, each with a checked box and a weight in brackets: 'mechanical heart valve [4]', 'heart valve prosthesis [1]', 'prosthetic heart valve [1]', 'heart valve prostheses [1]', 'heart valve [1]', 'valve prostheses [1]', 'mechanical heart valve prostheses [1]', 'heart valve design [1]', 'valve prosthesis [1]', 'natural heart valve [1]', 'mitral position [1]', 'blood flow through the valve [1]', 'blood through the valve [1]', 'aortic position [1]', 'motion of the leaflets [1]', 'bileaflet [1]', 'mechanical heart valve prosthesis [1]', 'st. jude medical [1]', 'natural tricuspid valve [1]', 'improved prosthetic heart valve [1]'. Below the list, there's a 'Search Now' button. There's also a section for 'Restrictions' and 'Semantic Search'.

Weightings are as follows:

mechanical heart valve

Specify the weighting of this concept or delete it. [Tell me more...](#)

mechanical heart valve should be:

- 4 required**
Make this concept mandatory in the search results - Boolean "and"
- 3 high**
Give a high prominence in the search results.
- 2 medium**
Give a medium prominence in the search results.
- 1 low**
Give a low prominence in the search results.
- 0 ignored**
Give no bearing to this concept in the search results.
- 1 excluded**
Make this concept prohibited in my search results - Boolean "not"

[Delete Concept](#) [Apply](#) [Cancel](#)

To rearrange the concepts in order of importance after changing the setting of any concepts, click **Update Display**.

Once you're satisfied with your search concepts, click **Search Now**. Your search results will appear.

Lexis®

My Lexis® Search Get a Document Shepard's® More History Alerts

FOCUS™ Terms Search Within Original Results (1 - 1668) Using Semantic Concepts What's this? Advanced...

View Cite Edit Search Save As Alert Hide Hits

Source: [Legal > Area of Law > By Topic > Patent Law > Search Non-Patent Prior Art > Elsevier Full-Text Journals, All \[1\]](#)

Terms: [mechanical heart valve \[4\]](#), [heart valve prosthesis \[3\]](#), [prosthetic heart valve \[3\]](#), [heart valve prostheses \[3\]](#), [heart valve \[3\]](#), [mechanical h...](#)

Select for FOCUS™ or Delivery

1. [European Journal of Cardio-Thoracic Surgery](#), July 2003, Pgs. 52-58, 3882 words, Does the noise of mechanical heart valve prostheses affect quality of life as measured by the SF-36? questionnaire?, Heinrich Koertke hkoertke@hdz-nrw.de; Annette Hoffmann-Koch; Dietmar Boethig; Kazutomo Minami; Thomas Brzymann; Mahmoud El-Arouay; Dirk Seifert; Reiner Koerfer Department of Thoracic and Cardiovascular Surgery, Heart Centre North-Rhine Westphalia Bad Oeynhausen, Clinic of the University of Bochum, Bochum, Germany

CORE TERMS: valve, noise, scale, disturbed, SF-36, quality of life, perception, Fig. questionnaire, et al, prostheses, replacement, mechanical, physical, heart valve, mean values, prosthetic, Koertke, ESCAT, disturbing, follow-up, mitral, grade, risk factors, anticoagulation, examination, disturbance, functioning, performed, emotional

ABSTRACT Objective: The closure clicks of **mechanical heart valve prostheses' leaflets** are quite often clearly audible. The study describes the effects of subjective **valve** sound perception on the patients' quality of life and analyses factors that might contribute to **valve** noise-related discomfort. **Methods:** We included ... patients who received a **mechanical valve prosthesis** and participated in the study in our institution from ... after the operation, only 5.8% classified their **valve** sounds as 'quite' or 'very ... for persisting unease caused by **valve** sounds. Without one of these factors, severe ... surgery. Patients disturbed seriously by **valve** noise showed significantly lower mean ... scale. **Conclusion:** Patients (94.2%) with **mechanical heart valve** replacement have no persistent complaints about the **valve** noise. The grade of annoyance by **valve** noise is paralleled by lower average ... probability of severe disturbance due to **mechanical valve** sounds. It remains unclear whether the disturbing ... Introduction In 1960, the first time **mechanical heart valve prosthesis** was implanted surgically. Today, **prosthetic valve** replacements are the second frequent cardiac surgical ... About half of them are performed using **mechanical valve prostheses**. This kind of prostheses is durable [1] but thrombogeneous, thus requiring anticoagulation. **Valve** developers, therefore, continue to modify prostheses material and ... still poorly addressed issue of **mechanical valve prostheses** is the noise they produce. This is perceived by many ... bearing, but some dislike the noise. **Valve** noise might reduce quality of life. Often, the **valve** sound perception does not coincide with physically ... intensity. Studies were performed using different **valve** models in **aortic** position in vitro [6] or vibration ... effect on patient's perception of his own **prosthetic valve** sounds [8,9]. Further studies addressed the ... social aspects beside the physical properties of **prosthetic** sounds [10-14]. However, the instruments ... present study was to explore to what extent the perception of **prosthetic valve** sound affects quality of life by ... factors associated with being disturbed by **valve** noise. 2. Patients and methods Quality of life and **valve** sound perception were secondary endpoints of the prospective ... 1200 consecutive patients who required **mechanical heart valve prosthesis** in the **aortic, mitral** or both positions. Patients had to be over 18 ... report his personal grade of disturbance by the **valve prostheses'** noise. The follow-up examinations included ... data and gives details on the implanted **valves**. The ESCAT questionnaire that we used to determine quality of ...

To adjust the relative importance of concepts:

- Click on a concept.
- Choose a setting in the box that displays. You can delete a concept altogether by clicking **Delete Concept**.
- After setting the importance of the concept, click **Apply**.

TIP: Here's a quick way to remove a concept: just click **Show Check Boxes**, if they're not displaying already, and then uncheck the box next to any concept you wish to remove.

To add your own search concepts:

- Enter your terms in the **Add another** concept field.
- Click **Add**.
- Scroll to the bottom of the concept list and select the new item to change the added concept's importance as indicated above.

TIP: There's a limit of 20 concepts, so you may need to delete one before adding your own.

A Semantic Search Best Practice

Running the search with an unedited semantic query can return results that are totally unexpected, but upon analysis are exactly on-point. Certain terms and concepts in the semantic query may not seem to be relevant at first glance.

Keep in mind that the semantic “brain” has learned from the corpus of the USPTO patent database and non-patent prior art sources—such as 1,600+ full-text Elsevier journals—to make connections between highly related concepts, even though completely different terms were used to describe the claim or technology.

So don't be afraid to let the initial semantic search run its course. This gives you the opportunity to see and understand what it finds—and determine how you can interact with the semantic query to refine your searches. As you experience the semantic analysis in action, you'll start to understand and predict how it will process your queries, enabling you to leverage it to your best advantage.

You are in complete control and can go back to the semantic suggestions at any time to edit, delete, add, and re-prioritize them.

PureDiscovery

Through a development alliance with PureDiscovery, a Dallas-based semantic software company, LexisNexis became the first legal research service provider to integrate an advanced form of semantic search technology with familiar Boolean search technology.

By enabling interactive semantic search technology for patent research, LexisNexis couples the recall of semantic searching with the precision of Boolean searching. It's a single package that gives you greater control of your patent research process via a simple, streamlined user interface. PureDiscovery is a pioneer in the emerging field of semantic social software. The company's semantic technology platform harnesses the collective intelligence from documents, and connects people and knowledge in ways and on a scale not previously possible.

Want to learn more?

888.253.3901 or www.lexisnexis.com/semantic-search