



Search Tools for Effective Patent Searching

**Lusaka
16 July 2014**

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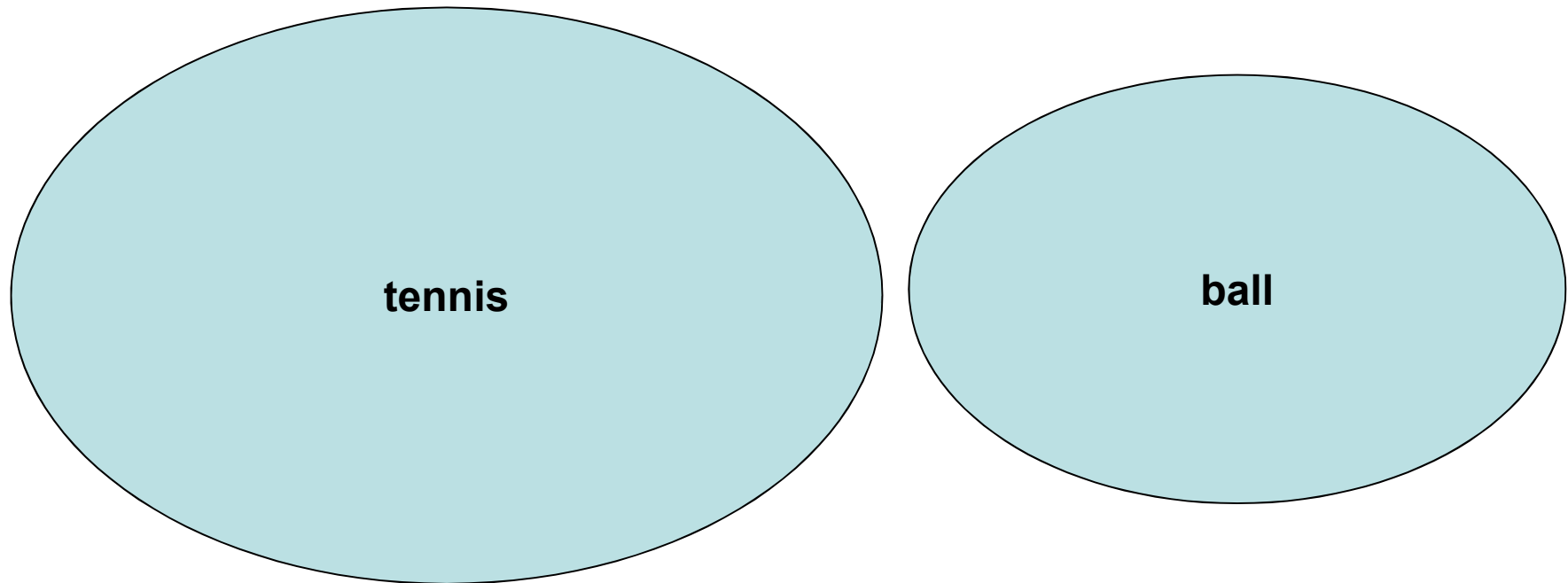
Overview

- Boolean operators
- Proximity operators
- Phrases
- Nesting
- Wildcard operators
- Patent Classification

Boolean operators

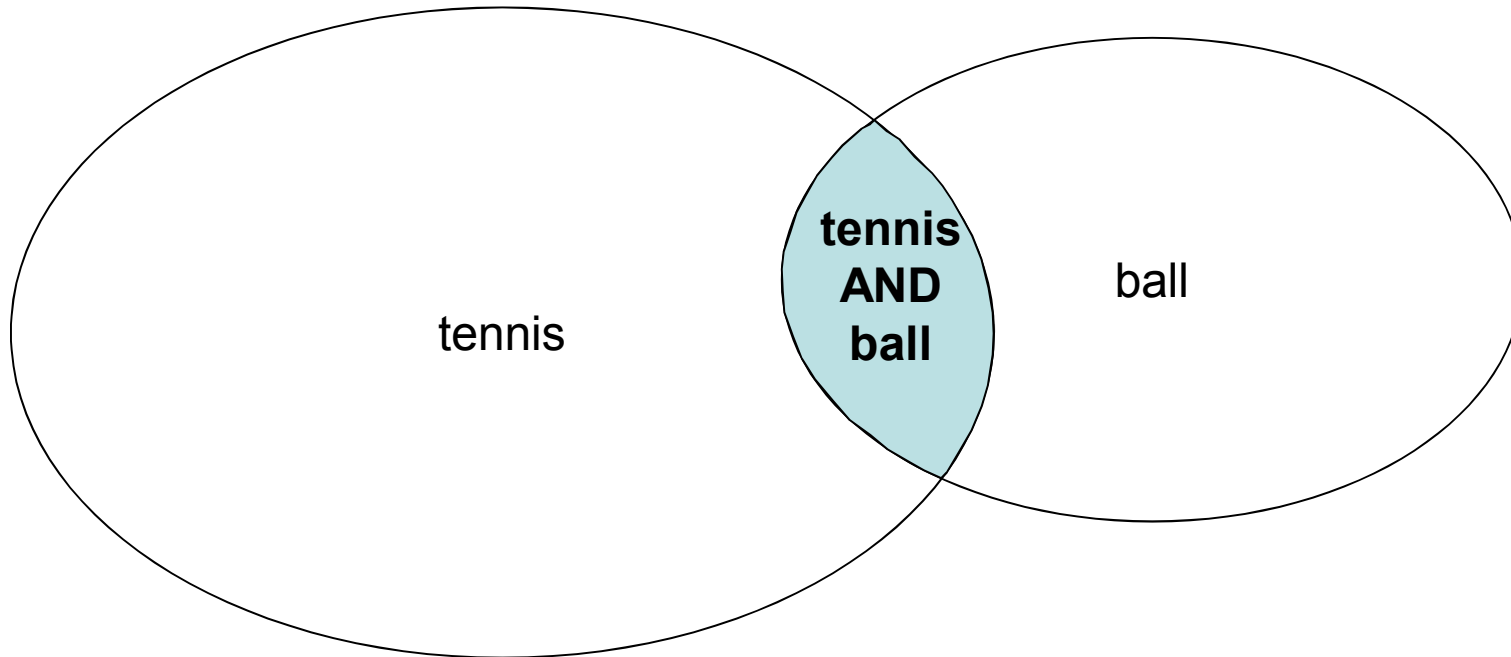
- Also known as "logical operators"
- AND (or +)
- OR
- NOT (or ANDNOT or -)

Boolean operators



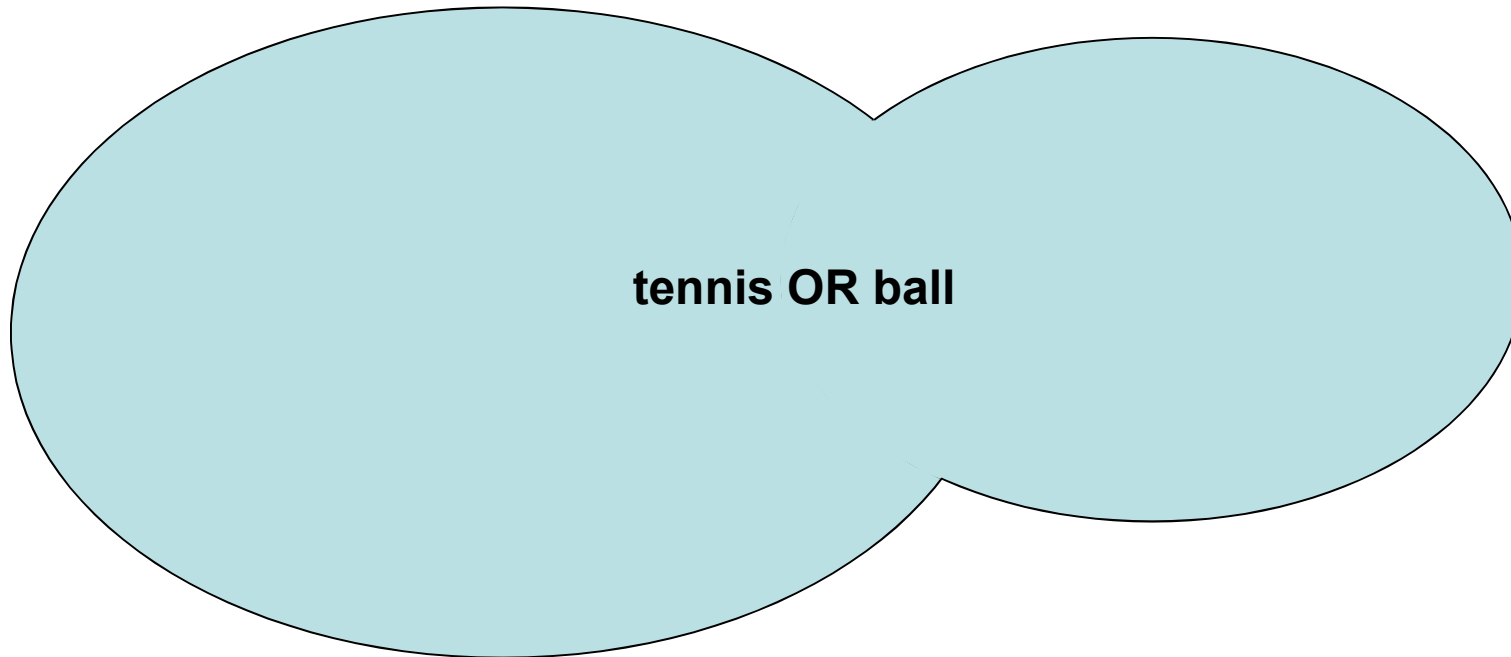
- Results in PCT collection (English titles):
 - **219** (tennis)
 - **2'829** (ball)
 - **3'048 total**

Boolean operators: AND



- Results in PCT collection (English titles)
 - **38** (tennis AND ball)

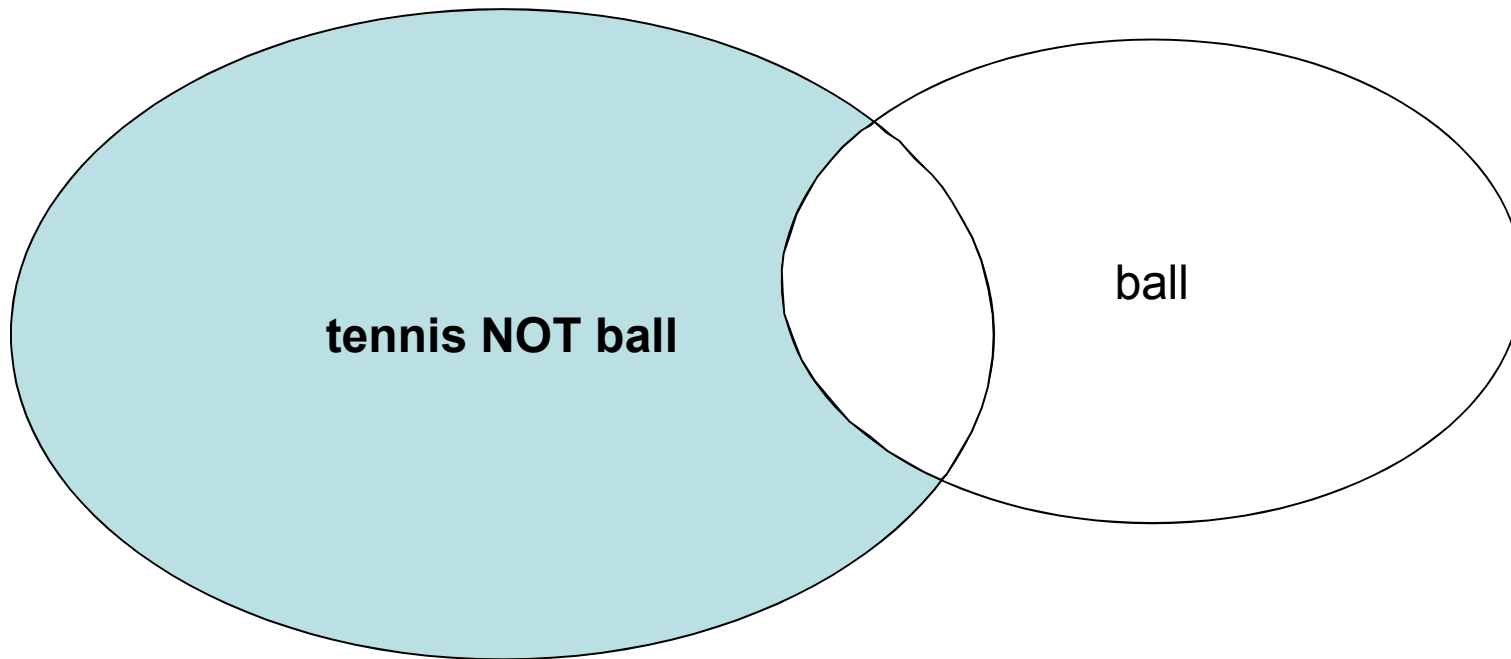
Boolean operators: OR



- Results in PCT collection (English titles)
 - **3'010** (tennis OR ball)

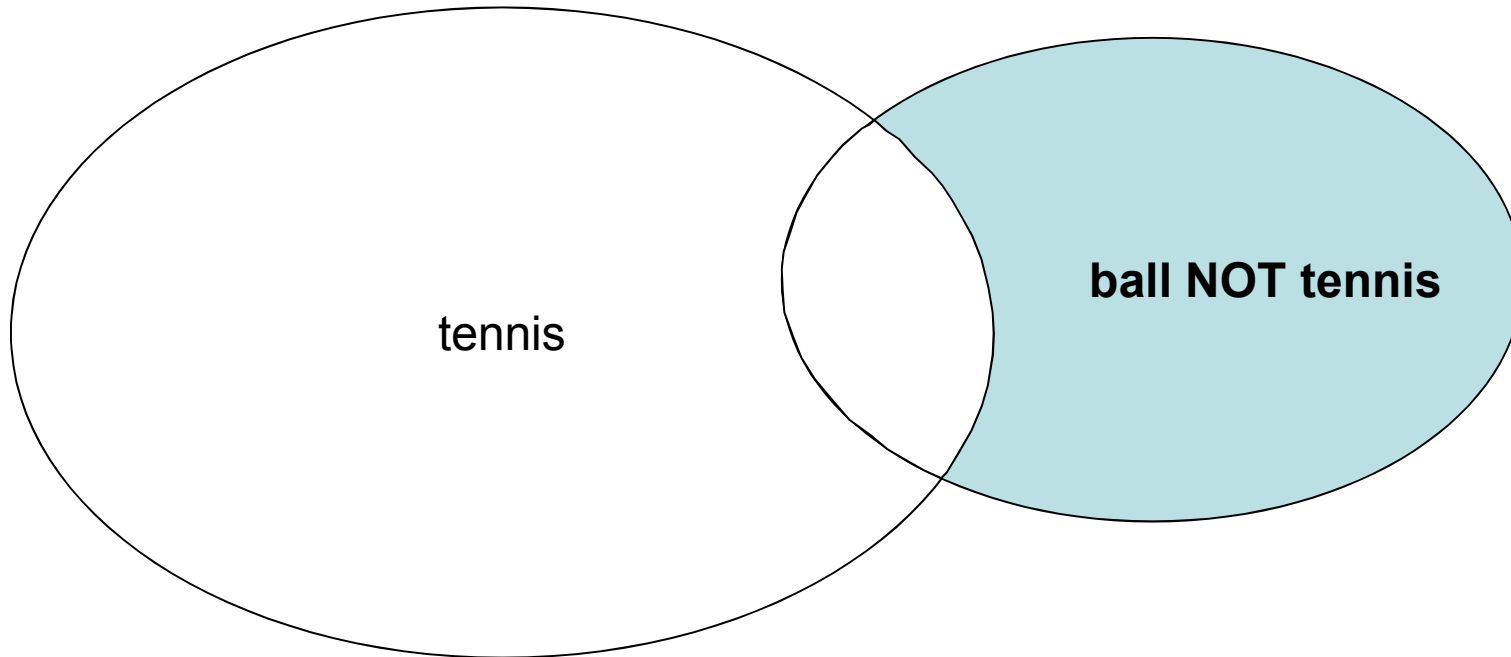
→ Avoids double counting tennis AND ball

Boolean operators: NOT



- Results in PCT collection (English titles)
 - **181** (tennis NOT ball)

Boolean operators: NOT



- Results in PCT collection (English titles)
- **2'791** (ball NOT tennis)

→ Order of terms matters!

Boolean operators: Uses

- OR: synonyms or related concepts
corn OR maize → synonyms
corn OR plant → related concepts
- AND: additional concepts
corn AND fertilizer

Proximity operators: Rationale

■ corn AND fertilizer

WO 2008/040445 also describes that 4-[[[(6-chloropyrid-3-yl)methyl](methyl)amino]furan-2(5*H*)-one can be present in its commercially available formulations and in the use forms, prepared from these formulations, as a mixture with other active compounds, such as insecticides, attractants, sterilizing agents, bactericides, acaricides, nematocides, fungicides, growth-regulating substances, herbicides, safeners, **fertilizers** or semiochemicals.

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■ ■ ■

In an embodiment of the invention, the invention is directed to the use of the combination, mixture or composition according to the invention for controlling pests which occur in rice, cotton, tea, vegetables, sugar cane, soybean, potato, top fruits **corn** vine, ornamentals, rangeland and pastures, canola.

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Proximity operators: Function

- Define the maximum "distance" (number of terms) between search terms
- Ensure that search terms are "in context" with each other

Proximity operators: Ordered

- Ordered: Search terms must be in given order (and within specified distance)

corn BEFORE5 fertilizer (in PATENTSCOPE)

A process is provided for the dry treatment of agricultural products such as corn and tobacco to remove fertilizer-derived nitrate. The process involves a short duration contact of the agricultural product with HCl gas under conditions which minimize generation of non-volatile chlorocarbons that could form by interaction of the agricultural product with the gaseous products of the reaction of the HCl with the nitrate.

Proximity operators: Unordered

- Unordered: Search terms can be in any order (and within specified distance)

corn NEAR5 fertilizer (in PATENTSCOPE)

A process is provided for the dry treatment of agricultural products such as corn and tobacco to remove fertilizer-derived nitrate. The process involves a short duration contact of the agricultural product with HCl gas under conditions which minimize generation of non-volatile chlorocarbons that could form by interaction of the agricultural product with the gaseous products of the reaction of the HCl with the nitrate.

The organic fertilizer comprises oilseed extract and/or corn steep liquor in combination with whey and/or other protein supplements, which provide a natural, nitrate free, nitrogen to the fertilizer. Additionally, a method of manufacturing an organic fertilizer comprising heating an oilseed extract, dissolving whey in the heated extract, and filtering the resultant mixture for use domestically and abroad.

Question

- How would you carry out a search for inventions related to blood pressure?



Photo source: Pia von Lützu

Boolean operators: AND

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
→ No context



Photo source: Pia von Lützu

Proximity operators

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
→ No context
- blood BEFORE1 pressure
→ Works, but not supported by all database systems



Photo source: Pia von Lützu

Phrases

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
 - No context
- blood BEFORE¹ pressure
 - Works, but not supported by all database systems
- **"blood pressure"**

Photo source: Pia von Lützu



Comparison: AND, proximity, phrases

- AND: both terms required, no context required
→ Broadest search
- Proximity: both terms required, in context
→ Narrower search (depending on distance)
- Phrases: exact phrase required (e.g. compound words)
→ Narrowest search

Nesting: Rationale

- apples AND oranges OR bananas

Nesting: Rationale

- apples AND oranges OR bananas



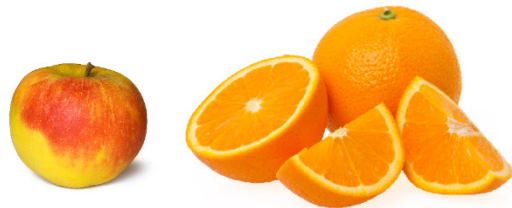
or



Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting: Rationale

- apples AND oranges OR bananas



or

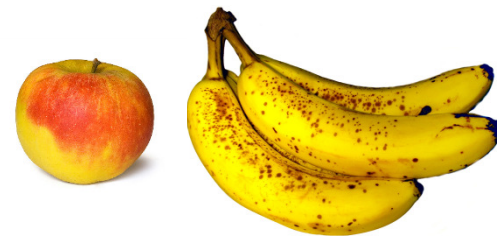
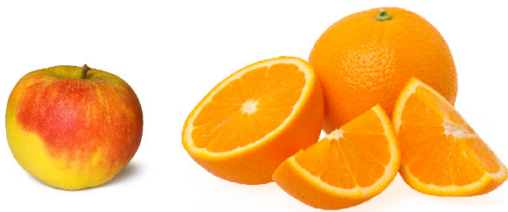


Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting: Rationale

- apples AND oranges OR bananas



or



or



Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting

- (apples AND oranges) OR bananas



or



- apples AND (oranges OR bananas)



or



Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Question

- How would you carry out a search for all manner of inventions related to electricity?



Photo source: Dmitri G (Wikimedia)

Key concepts

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

Boolean operators: OR

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

→ electricity OR electrical OR electric OR electronic OR
electromagnetic ...

Wildcard operators

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

Wildcard operators

- **electricity**
- **electrical**
- **electric**
- **electronic**
- **electromagnetic**
- ...

Wildcard operators

- **electricity**
- **electrical**
- **electric**
- **electronic**
- **electromagnetic**
- ...

→ electr*

(* represents a given number of characters)

Advantages of classification vs. keywords

- Terminology and jargon independent (including changes in terms used over time)
- Language independent

→ A more complete and precise search

Advantages of patent classification vs. keywords

- Applied in a standardized manner to patent documents
- Available for patent documents published (nearly) anywhere in the world
- Available for (old) patent documents for which little or no searchable text is available
- Specially adapted for patent documentation

Disadvantages of patent classification vs. keywords

- May not be available for all areas of technology
- May not be specific enough for a particular search
- May not be available for all documents
- Potentially complex

Major patent classification systems

- International Patent Classification (IPC)
- Cooperative Patent Classification (CPC)
- Japanese Patent Classification (FI/F-terms)
- US Patent Classification (USPC) → replaced by CPC from 01.01.2013

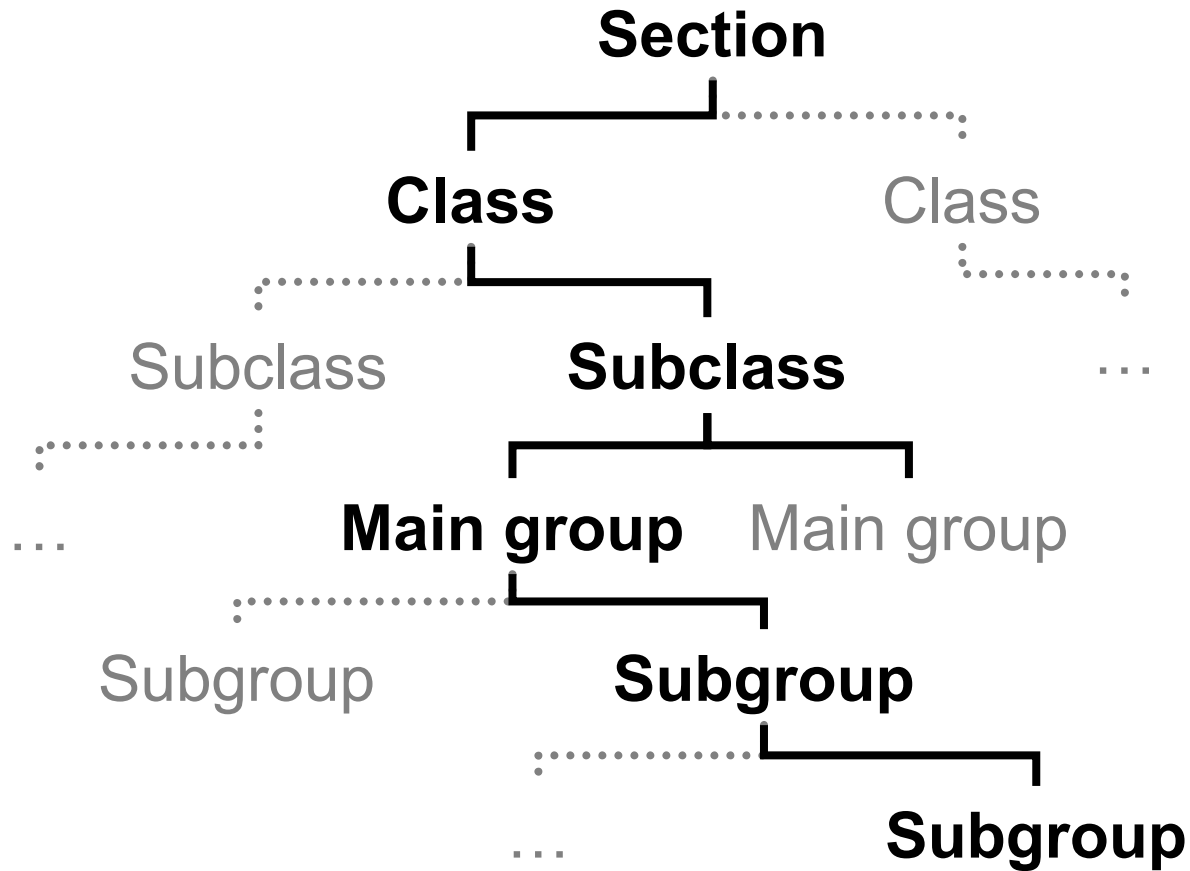
Difference between classification systems

	Language availability	Number of entries	
IPC	English and French (w/ national versions)	~70'000	
CPC	English only	~250'000	Based on IPC
FI/F-terms	English and Japanese	~190'000 (~450'000)	Based on IPC
USPC	English only	~160'000	

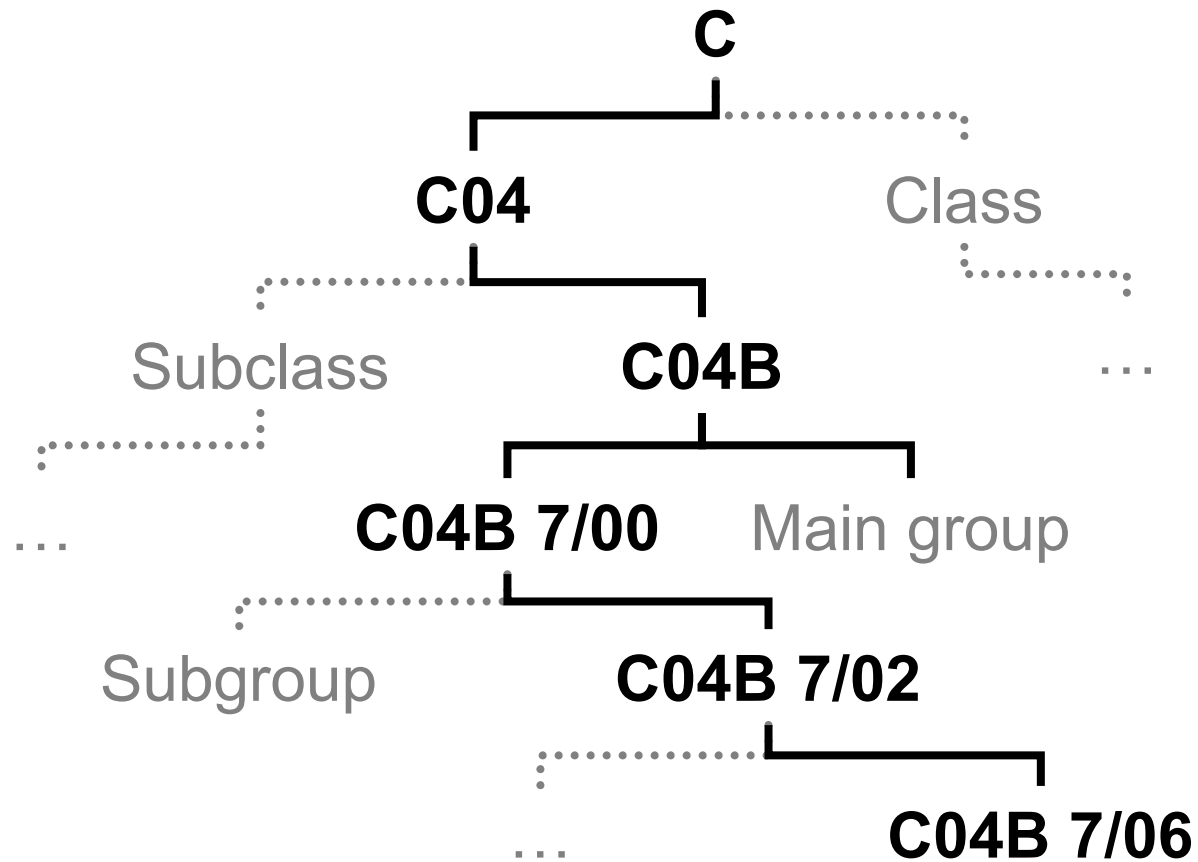
IPC: Structure

- Hierarchical
 - Section
 - Class
 - Subclass
 - Main group
 - Subgroup

IPC: Structure



IPC: Structure



IPC: Structure

- C → Chemistry
- C04 → Cements; concrete; artificial stone; ceramics; refractories
- C04B → Lime; magnesia; slag; cements; compositions thereof...; artificial stone; ceramics; refractories; treatment of natural stone
- C04B 7/00 → Hydraulic cements
- C04B 7/02 → Portland cement
- C04B 7/06 → using alkaline raw materials

IPC: Structure (subgroups)

C04B 7/00	Hydraulic cements
C04B 7/02	• Portland cement
C04B 7/04	•• using raw materials containing gypsum
C04B 7/06	•• using alkaline raw materials
C04B 7/12	• Natural pozzuolanas; Natural pozzuolana cements [4]
C04B 7/13	•• Mixtures thereof with inorganic cementitious materials, e.g. Portland cements [4]
C04B 7/14	• Cements containing slag
C04B 7/147	•• Metallurgical slag [4]
C04B 7/153	••• Mixtures thereof with other inorganic cementitious materials or other activators [4]
C04B 7/17	•••• with calcium oxide containing activators [4]
C04B 7/19	••••• Portland cements [4]
C04B 7/21	•••• with calcium sulfate containing activators [4]
C04B 7/22	• Iron ore cements
C04B 7/24	• Cements from oil shales, residues or waste other than slag [4]
C04B 7/26	•• from raw materials containing flue dust
C04B 7/28	•• from combustion residues (C04B 7/26 takes precedence) [4]

→ More dots = lower hierarchical level

IPC: Internet publication

The screenshot shows the WIPO IP SERVICES International Patent Classification (IPC) Official Publication website. The header includes the WIPO logo and the text "WORLD INTELLECTUAL PROPERTY ORGANIZATION". Below the header, there are navigation tabs for "Scheme", "RCL", "Compilation", and "Catchwords". The "Scheme" tab is active, displaying a list of sections from A to H. On the left side, there are several interactive elements: a "Version" dropdown menu set to "2012.01", a "Current symbol" input field with a "Go to" button, a "Language" section with radio buttons for "English" (selected), "French", and "English/French", a "View mode" section with radio buttons for "path", "full" (selected), and "hierarchic", and a list of checkboxes for "Standardized sequence", "Deleted entries", "Subclass indexes", "Guidance Headings", and "Notes".

WIPO IP SERVICES International Patent Classification (IPC) Official Publication

WORLD INTELLECTUAL PROPERTY ORGANIZATION

IPC Home Page - Help

Version: 2012.01

Current symbol: [input field]

Go to

Language: English, French, English/French

View mode: path, full, hierarchic

Standardized sequence, Deleted entries, Subclass indexes, Guidance Headings, Notes

Scheme	RCL	Compilation	Catchwords
A			
B			
C			
D			
E			
F			
G			
H			

- SECTION A — HUMAN NECESSITIES
- SECTION B — PERFORMING OPERATIONS; TRANSPORTING
- SECTION C — CHEMISTRY; METALLURGY
- SECTION D — TEXTILES; PAPER
- SECTION E — FIXED CONSTRUCTIONS
- SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
- SECTION G — PHYSICS
- SECTION H — ELECTRICITY

<http://www.wipo.int/ipcpub>

IPC: Internet publication

Language

English

French

English/French

View mode

path

full

hierarchic

Standardized sequence

Deleted entries

Subclass indexes

Guidance Headings

Notes

Search

Terms

Cross-references

Assistances

STATS

Text categorization (IPCCAT)

Number of displayed entries

500 ▾

E SECTION E — FIXED CONSTRUCTIONS

F SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

G SECTION G — PHYSICS

H SECTION H — ELECTRICITY

STATS

Version 2013.01 - English

Word(s)

semiconductor laser

Stemming

Limit to

Exclude

IPC	Relevance	Refine
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Display results

STATS

Version 2013.01 - English

Word(s)

Stemming

Limit to

Exclude

IPC	Relevance	Refine
H01L	28	»
H01S	25	»
G02B	14	»
G01N	8	»
G11B	6	»
G02F	6	»
H04B	5	»

IPC: Internet publication

Language

English

French

English/French

View mode

path

full

hierarchic

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E SECTION E — FIXED CONSTRUCTIONS

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H SECTION H — ELECTRICITY

IPC: Terms

Version **2013.01 - English**

Word(s)

Limit to

Exclude

Scheme Path

Definition

Catchwords

Display results

Use keywords

IPC: Terms

Version **2013.01 - English**

Word(s)








Limit to

Exclude

<input checked="" type="checkbox"/> Scheme	<input type="checkbox"/> Path	<input checked="" type="checkbox"/> Definition	<input checked="" type="checkbox"/> Catchwords
G02B 6/43 H01L 29/15 H01L 33/00 H01L 51/50 H01S H01S 3/00 H01S 3/0941 H01S 3/23 H01S 5/00 H01S 5/40 H03F		C23F F21K G01J G02F 2/00 G11B G11B 7/126 G11B 7/127 H01L H01S	LIGHT SEMICONDUCTOR(S)
11		9	2

Display results

IPC: H01S 5/00

	H01S 5/00	Semiconductor lasers [7]
		Note(s) Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. [2010.01]
	H01S 5/02	· Structural details or components not essential to laser action [7]
	H01S 5/022	· · Mountings; Housings [7]
	H01S 5/024	· · Cooling arrangements [7]
	H01S 5/026	· · Monolithically integrated components, e.g. waveguides, monitoring photo-detectors, drivers (stabilisation of output H01S 5/06 ; coupling light guides with opto-electronic elements G02B 6/42 ; devices consisting of a plurality of semiconductor or other solid state components formed in or on a common substrate, specially adapted for light emission H01L 27/15) [7]
	H01S 5/028	· · Coatings [7]
	H01S 5/04	· Processes or apparatus for excitation, e.g. pumping (H01S 5/06 takes precedence) [7]

IPC: Internet publication

- full
- hierarchic

- Standardized sequence
- Deleted entries
- Subclass indexes
- Guidance Headings
- Notes

Search

Terms

Cross-references

Assistance

Text categorization
(IPCCAT)



G

SECTION G — PHYSICS



H

SECTION H — ELECTRICITY

IPC: IPCCAT



IPCCAT - Categorization Assistant in the International Patent Classification (version 2011.01)

This is a categorization assistance tool for the International Patent Classification system. It is mainly designed to help to classify patents at IPC class, subclass or main group level.

IPCCAT:

Help
About IPCCAT

GATEWAY TO:

IPC
TACSY

Last update: 201101

Classification Request Form

Choose the document to categorize:

Browse...

Supported formats

Or paste in the text below a quote from the document to categorize:

A metal-clad optical waveguide with a semiconductor microcavity structure is proposed to increase the coupling efficiency of spontaneous emission into a lasing mode (spontaneous emission coefficient β) and to increase a total spontaneous emission rate simultaneously. Such a microcavity semiconductor laser with enhanced spontaneous emission has novel characteristics, including high quantum efficiency, low threshold pump rate, broad modulation bandwidth, and intensity noise reduced to below the shot-noise

Number of predictions:

Classification level:

Classify

Use keywords or full text

IPCCAT: Note

- IPCCAT is intended to be used on full sentences or longer texts.
- You can use it for shorter texts, but remember to put a period (full stop) after your search terms.

Strategy

- Start off by searching with either keywords or the classification
- Combine keywords and classification