

Search engines for use with encoded scores

Search engines for encoded scores

1. Themefinder (1996--)
 - www.themefinder.org
2. RISM OPAC search (2011--)
 - opac.rism.info
3. ScoreSearch (2021)
 - <https://scoresearch.musiconn.de/ScoreSearch/processQuery?facetList=year%3a%221791%22&bsbID=&includeRelative=true&facetList=author%3a%22Mozart%2c+Wolfgang+Amadeus%22&omrPitches=E4A4C%235C%235B4A4>

Other music search engines

1. MIDOMI: <https://www.midomi.com/> (sing/hum interface)

2. SoundHound (app)

3. Peachnote

- Advertises synchronization of IMSLP scores and youtube music videos
- N-gram viewer and data compiled in 2011 are the only things accessible (2023)
- Data: 1- to 15-grams extracted from IMSLP (Petrucchi ML)

Parameters in search databases

1. The notes
2. Metadata
3. Textual refinements
 - Filters
4. Musical refinements
 - Levels of detail in search

Obstacles (operational) to useful results

1. Too many “hits”
2. Poor quality encodings
3. Pertinent repertory not included in database

1. ScoreSearch (Musiconn)

- Developed by the Bavarian State Library (BSB), Munich
- Searchable material comes from scans
- Editions used come from ViFaMusik (2021)
- Allows access to several instantiations
 - Score
 - MusicXML
 - MIDI, with score following (but note the score layouts!!)

Class exercise:

Targets	ScoreSearch, general	ScoreSearch," exact"	RISM OPAC	Themefinder
Ex. 1				
Ex. 2				
Ex. 3				

Example 1



Schubert



☒ Transponierte Ergebnisse finden ☐ Nur exakte Ergebnisse finden

Suchen

Query in ScoreSearch (also RISM)

Allowing any transposition

Matches for Ex. 1 from Themefinder (15,000 incipits)

Themefinder Results

[search](#), [feedback](#)

Matches = 6

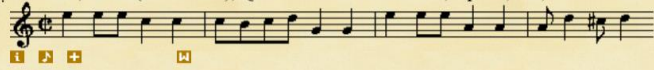
1. Paderewski, Ignace Jan (1860-1941), Concerto in A Minor, Op. 17, Pft. & Orch., 3rd Movement, 2nd Theme



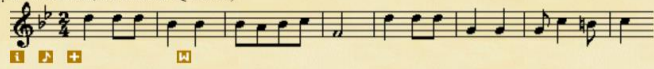
2. Schubert, Franz (1797-1828), Impromptus, Pft., Op. 142, No. 3 in B Flat (Theme & Variations)



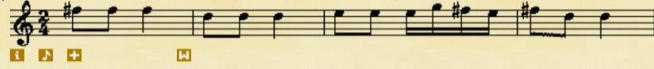
3. Schubert, Franz (1797-1828), Quartet No. 13 in A Minor, Op. 29, Str., 2nd Movement



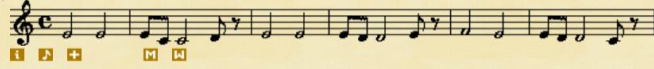
4. Schubert, Franz (1797-1828), Rosamunde, Overture, Op. 26, Entr'Acte (Same as Slow Movement, A Minor Quartet)



5. Shostakovich, Dmitri (1906-1975), The Golden Age, Op. 22, Ballet, 2nd Theme



6. Sibelius, Jean (1865-1957), Symphony No. 3 in C, Op. 52, 3rd Movement, 3rd Theme



Target:



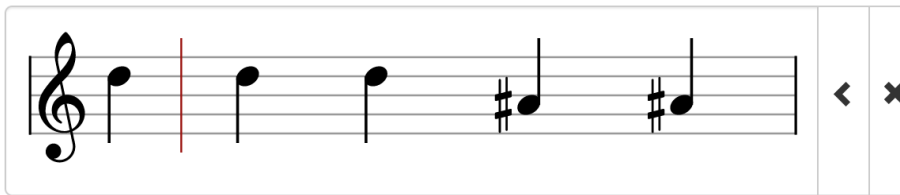
Six matches

No. 2 match matches of target

Chronological span: 1500-1920

Queries for Ex. 1 from RISM (1.4 million incipits)

Finds **1256 matches** (5 tones) for this:



Changing to 7 tones, finding **110 matches**:



Among these **no matches** occur because...

- RISM focuses on manuscripts from 1600 to 1800 (example from early 19th century)
- no rhythms given in query
- no enharmonic notation in query

Matches for Ex. 1 from MuseScore

23,525 possible matches (5-tone)

8,028 possible matches (7-tone version); 2,105 by Handel

Same enharmonic obstacles; no meter filter



Nos. 4, 5

4. **Ausgewählte Kantaten**S.162

Graupner, Christoph, 1683-1760

Leipzig : Breitkopf & Härtel 1926



5. **Passionsoratorium**S.26

Bach, Johann Ernst, 1722-1777, Bach, Johann Ernst

Leipzig : Breitkopf & Härtel 1914



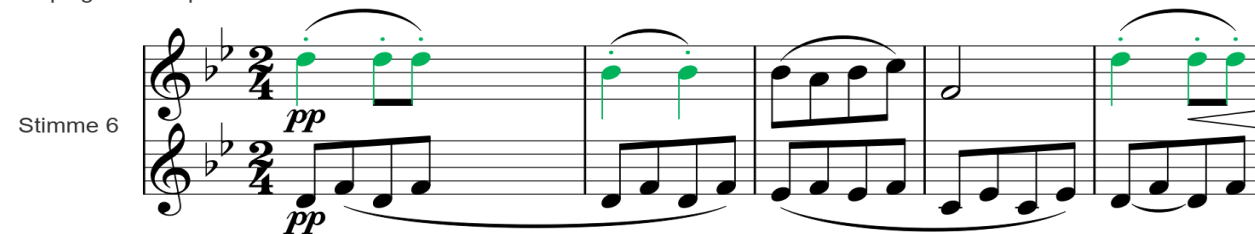
Most appropriate ScoreSearch match



35. Franz Schuberts Werke 15,4. Bd. 4, Die Zauberharfe. Rosamunde. - Partitur. - 1891. - 480 S.: S.443

Schubert, Franz

Leipzig : Breitkopf & Härtel



Example 2



Beethoven







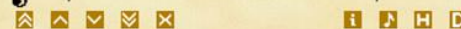
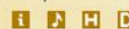
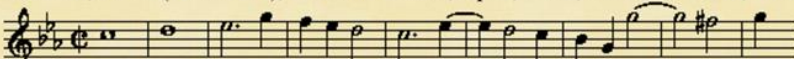



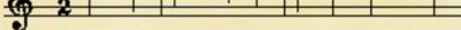
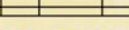
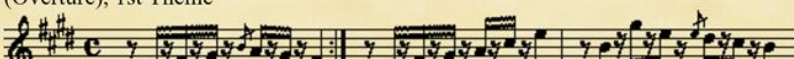
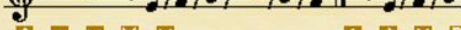

Only exact matches (7 tones)

☐ Transponierte Ergebnisse finden ☒ Nur exakte Ergebnisse finden

Suchen

Matches for Example 2 in Themefinder

Theme Clipboard [[Clear](#) | [Reload](#) | [Compact](#)]

1. Beethoven, Ludwig Van (1770-1827), Sonata No. 27, in E Minor, Op. 90, Pft., 2nd Movement (Rondo)



2. Enesco, Georges (1881-1955), Poème Roumain, Op. 1, Symphonic Suite, 2nd Movement, Roumanian National Anthem



3. Locatelli, Pietro (1696-1764), Concerto Grosso, Op. 1, No. 2, Str. Orch. & Pft., 4th Movement



4. Respighi, Ottorino (1879-1936), Fountains of Rome, Orch., The Villa Medici Fountain at Sunset, 2nd Theme



5. Rossini, Gioacchino Antonio (1792-1868), La Boutique Fantasque, Ballet, 1st Movement (Overture), 1st Theme




- Six matches
- Desired result is No. 1

Matches for Example 2 in RISM

- 694 matches (7 tones)
- 152 proposed matches for Haydn
- None match target (Beethoven)
- Sample match: Symphony in F Major by Anton Fils (1733-1760):

1.2.1 vl 1, 2/4 Andante molto; B|b



Matches for Example 2 from ScoreSearch

637 proposed matches (no transposition selected)

250 proposed matches for Handel

Most outlandish match shown; missing first note of target

23. Beethoven's Werke80 = Serie 11: Trios für Pianoforte, Violine und Violoncell: Trio : op. 1,2S.15

Beethoven, Ludwig van
Leipzig : Breitkopf und Härtel



Matches for Example 2 from ScoreSearch

637 proposed matches (no transposition selected)

250 proposed matches for Handel

54 works by Beethoven in results, but no way to view them serially

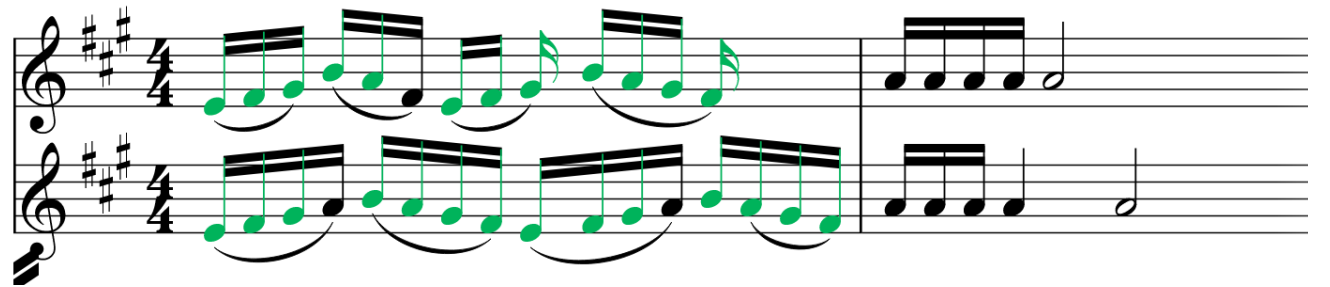
Mystery meter!



5. **Ausgewählte Ballette Stuttgarter Meister aus der 2. Hälfte des 18. Jahrhunderts**S.213

Deller, Florian

Leipzig : Breitkopf & Härtel 1913



Match for Ex. 2 in ScoreSearch



Cadenza for Beethoven
piano concerto
No. 11 of 54
No match for target

Score search does not
discriminate between
sections of movement.

Single clef sign for two
staves

11. Beethoven's Werke70a = Serie 9: Für Pianoforte und Orchester: Cadenzen zu den Pianoforte-ConcertenS.35
Beethoven, Ludwig van
[1862 - 1865]

Example 3



Vivaldi



☐ Transponierte Ergebnisse finden ☒ Nur exakte Ergebnisse finden

Proposed matches from Themefinder



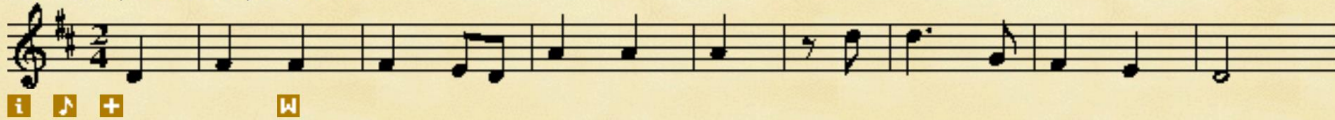
1. Anonymous, A soldier is the lad for me



2. Anonymous, The fife or drum



3. Chandler, Solomon, Enfield



- 7-note target
- Three proposed matches
- No true matches

Proposed matches from US-RISM



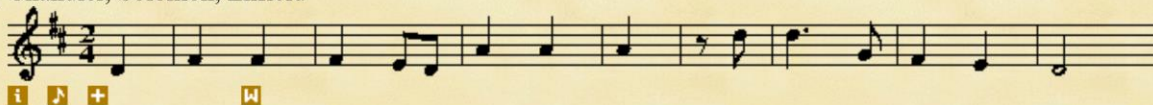
1. Anonymous, A soldier is the lad for me



2. Anonymous, The fife or drum



3. Chandler, Solomon, Enfield



[See next slide]

Proposed matches from Swiss-RISM (rism.info)

If limited to Vivaldi:






3 result(s)

Select titles:
all none

Temporary List Save

Relevance Sort

max. 10 Show

- ☐ 1.  Vivaldi, Antonio <1678-1741>
Concertos - E major; Manuscript copy; GB-Mp Ms. 580Ct51 vv.1-4, 6
- ☐ 2.  Vivaldi, Antonio <1678-1741>
La primavera - E major; RV 269; Manuscript copy; D-B Mus.ms. 22395/3
- ☐ 3.  Vivaldi, Antonio <1678-1741>
La primavera - E major; RV 269; Print; B-Bc [no indication]
[View Online](#)

If not limited, proposed matches = 92
Haydn = 23

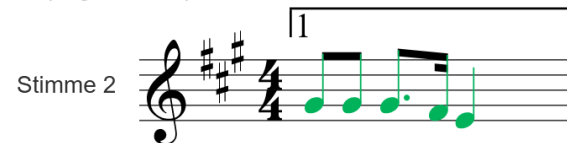
Proposed matches from ScoreSearch

- 7-note target
- 206 hits (without transposition)
- 89 = Handel
- Some proposed matches



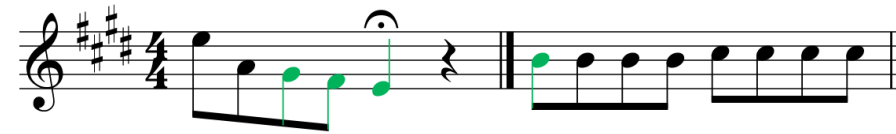
2. Harmonische Freude musikalischer Freundel. u. anderer TeilS.270

Erlebach, Philipp Heinrich
Leipzig : Breitkopf u. Härtel 1914



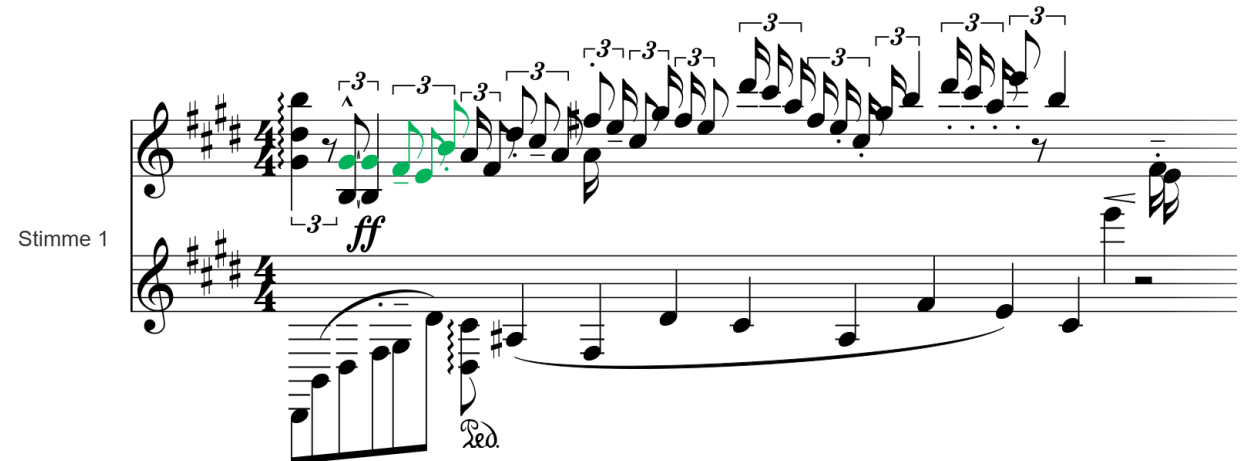
12. Georg Friedrich Händel's Werke67: Flavio : operaS.38

Händel, Georg Friedrich, 1685-1759, Händel, Georg Friedrich
1875



30. Musikalische Werke2,6: Wanderjahre : Für Pianoforte zu zwei HändenS.99

Liszt, Franz, 1811-1886, Liszt, Franz
Leipzig : Breitkopf & Härtel



Factors that affect search accuracy

1. **Anchoring** (or not)
2. **Mode** match
3. **Meter** (unless 2/2, 4/4 etc.)
4. Confinement of search to one voice (polyphonic, **monophonic**)
5. Chromatic, **enharmonic discrimination** (varies with repertory)
6. Partial matches/length of search-string control missing
7. **Repertory** not included in database?
8. **Query length**
9. “Matches” **skip** notes in target
10. Matches **skip** notes in “match”
11. “Matches” **cross parts**
12. Matches **ignore structural** divisions (formal cadence endings; n-gram misses)

Three site listings with lots of music

- Digital Resources for Musicology: drm.ccarh.org
- ADAM: Archive of Digital Applications in Music: adam.ccarh.org
- EVE: Electronic and Virtual Editions of Music: eve.ccarh.org