

USER

What sources by Bach in Culture Knowledge graph exist, and what incipits do they contain?

ASSISTANT

Selecting knowledge graph(s)

► Result from Selecting knowledge graph(s)

Querying knowledge graph

► Thought for 353 seconds

► Result from Querying knowledge graph

Validating and executing SPARQL query

I now have comprehensive data. Let me compile the final answer with all the key findings.

The Culture Knowledge Graph contains **1,073 distinct RISM sources** attributed to the Bach family (with **1,757 incipits** total), distributed across three main source ID ranges:

- **4670** prefix (J.S. Bach): **472 sources, 876 incipits**
- **1001** prefix (C.P.E. Bach, J.C.F. Bach, W.F. Bach): **519 sources, 769 incipits**
- **4525** prefix (J.L. Bach): **82 sources, 112 incipits**

These sources are RISM (Répertoire International des Sources Musicales) records at <https://rism.online/sources/>, and each contains one or more musical incipits encoded in **Plaine & Easie Code** notation. The sources span the entire Bach family — Johann Sebastian, Carl Philipp Emanuel, Wilhelm Friedemann, Johann Christoph Friedrich, and Johann Ludwig Bach.

How the data is structured

Sources link to their incipits via `cto:CT0_0001065`. Each incipit (`cto:CT0_0001024`) carries:

- `rdfs:label` — descriptive label (position, tempo, title, key, source type, shelfmark)
- `cto:CT0_0001060` — time signature
- `cto:CT0_0001061` — clef
- `cto:CT0_0001062` — key signature
- `cto:CT0_0001063` — Plaine & Easie melodic notation
- `cto:CT0_0001064` — key (tonal centre)

Representative examples

Source	Incipit	Label	Key	Time Sig	Plaine &
<code>sources/467001301</code>	<code>1.1.1</code>	Sanctus–D-Dur; Autograph; BWV 232/III; D-B Mus.ms. Bach P 13 (1)	D	c/	<code>4''FD8({DCD})({EDE})/4FD8({E</code>
<code>sources/467002500</code>	<code>1.1.1</code>	Passio secundum Matthaeum; Autograph; BWV 244; D-B Mus.ms. Bach P 25	e	12/8	<code>4.'E+8{EFG}4.F+8{FxGA}/{xGFE</code>

sources/467002500	1.2.1	Aria – Passio secundum Matthaeum; BWV 244	b	3/8	88.33{' 'FCDE}/{D'xAB' 'C}/{ 'B
sources/467003200	1.1.1	Weihnachtsoratorium; Autograph; BWV 248; D-B Mus.ms. Bach P 32	D	3/8	,8{CCC}/{C,,G}-/{6,C3CC6C,,G
sources/467003800	1.1.1	Magnificat–Es-Dur; Autograph; BWV 243a; D-B Mus.ms. Bach P 38	E ^b	3/4	6'{B' 'EDC}{ 'BAGA}{B' 'C'B' 'C}{B' 'C'B' 'C}/{ 'B' 'EDC}{ 'B' 'GF
sources/467003900	1.1.1	Magnificat–D-Dur; Autograph; BWV 243; D-B Mus.ms. Bach P 39	D	3/4	6'{A' 'DC'B}{AGFG}{ABAB}/{A' '{CBAG}/
sources/467004101	1.1.1	Lass Fürstin lass noch einen Strahl; Autograph; BWV 198; D-B Mus.ms. Bach P 41 (1)	b	c	4' 'D6–{D6.C3D}8{'FE+}{6.3E' '{C'BxAB}/4' 'F
sources/467004402	1.1.1	Bleib bei uns denn es will Abend werden; Autograph; BWV 6; D-B Mus.ms. Bach P 44 (2)	c	3/4	8' '{EC}4. 'nB8' 'C/2.C/8{F6bAG
sources/1001009843	1.1.1	Sonatas–h-Moll; Teilautograph; BWV 1014; D-B Mus.ms. Bach St 162 (1)	B	6/4	2. ' 'F+{8FGGFFE}/2.E+{8EFFEED
sources/1001011205	1.1.3	Aria. Allegro di molto – Man riss den Meister hin; Autograph; BR-CPEB; D-B Mus.ms. Bach P 340 (7)	A	c	4- / = 3/2 – 4 – 8' EE/4EC, AE/FE – 8AA
sources/1001011409	1.1.1	Die alte Litaneÿ. Sehr langsam – Zwei Litaneien–G-Dur; Autograph; BR-CPEB; D-B Mus.ms. Bach P 344	G	—	—
sources/452505095	1.1.1	Unsere Trübsal die zeitlich und leicht ist–	—	—	—

		g-Moll; Abschrift; KastB; D-B Am.B 326 (25)			
--	--	---	--	--	--

SPARQL query used for counts

The "Bach" filter matches shelfmarks like Mus.ms. Bach P , Mus.ms. Bach St , Bach C.P.E. , JLBach , and Bach J in the incipit labels — these are the standard RISM shelfmark patterns for Bach family manuscripts held at the Staatsbibliothek zu Berlin and other libraries.

The SPARQL has been executed:

```
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX cto: <https://nfdi4culture.de/ontology/>
SELECT (COUNT(DISTINCT ?source) AS ?sourceCount) (COUNT(DISTINCT ?incipit) AS ?
incipitCount)
WHERE {
    ?source cto:CT0_0001065 ?incipit .
    ?incipit rdf:type cto:CT0_0001024 ; rdfs:label ?label .

    FILTER(STRSTARTS(STR(?source), "https://rism.online/sources/4670"))
    FILTER(REGEX(STR(?label), "Bach[,;\s()|Bach$|Bach P |Bach St |Bach
C\\.P\\.E|JLBach|Bach J"))
}
```

USER

In Wikidata, what are Bach's life dates, image, occupations, and family relationships?

ASSISTANT

Selecting knowledge graph(s)

- Result from Selecting knowledge graph(s)

Querying knowledge graph

- Thought for 57 seconds
- Result from Querying knowledge graph

Validating and executing SPARQL query

Here is a comprehensive summary of Johann Sebastian Bach's (Q1339) life dates, image, occupations, and family relationships as recorded in Wikidata.

Life Dates

	Date
Born	1685-03-31
Died	1750-07-28

Image

Image URL
https://commons.wikimedia.org/wiki/Special:FilePath/Johann%20Sebastian%20Bach.png

Occupations (8)

Occupation	Wikidata URI
composer	Q36834
conductor	Q158852
organist	Q765778
harpsichordist	Q5371902
violinist	Q1259917
music educator	Q16145150
musicologist	Q14915627
virtuoso	Q214970
school teacher	Q2251335
concertmaster	Q691031
choir director	Q1076502

Family Relationships

Parents

Relation	Name	Wikidata URI
Father	Johann Ambrosius Bach	Q309470
Mother	Maria Elisabeth Lämmerhirt	Q66671

Spouses

Name	Wikidata URI
Maria Barbara Bach	Q57487
Anna Magdalena Bach	Q57212

Children (20)

Name	Wikidata URI
------	--------------

Catharina Dorothea Bach	Q15079141
Wilhelm Friedemann Bach	Q107277
Johann Christoph Bach	Q30075271
Maria Sophia Bach	Q21029009
Leopold Augustus Bach	Q21029016
Christiana Sophia Enrietta Bach	Q21029017
Gottfried Heinrich Bach	Q710996
Christian Gottlieb Bach	Q21042316
Elisabeth Juliana Friderica Bach	Q15735857
Johann Gottfried Bernhard Bach	Q470198
Regina Johanna Bach	Q21042284
Christiana Benedicta Louisa	Q21042280
Johanna Carolina Bach	Q21042259
Regina Susanna Bach	Q21042256
Christiana Dorothea Bach	Q21042273
Johann August Abraham Bach	Q21042303
Ernestus Andreas Bach	Q21042307
Carl Philipp Emanuel Bach	Q76428
Johann Christoph Friedrich Bach	Q57225
Johann Christian Bach	Q106641

Siblings

No sibling relationships (P33) are recorded for Johann Sebastian Bach in Wikidata.

SPARQL query used (main query):

The initial wide query (with OPTIONALs for birth/death, image, occupations, parents, spouses, and children) returned 50 rows from a cross-product of 8 occupations × 2 spouses × 3 visible children; the deduplicated lists above were extracted from those results plus the dedicated children/siblings queries.

The SPARQL has been executed:

```
PREFIX wdt: <http://www.wikidata.org/prop/direct/>
PREFIX wd: <http://www.wikidata.org/entity/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
SELECT DISTINCT ?child ?childLabel
WHERE {
```

```

    BIND(wd:Q1339 AS ?bach) ?bach wdt:P40 ?child .

    OPTIONAL {
        ?child rdfs:label ?childLabel .

        FILTER(LANG(?childLabel) = "en")
    }
}

```

USER

What musical entries exist for Bach in DNB, and what are their instrumentation and key designation?

ASSISTANT

Selecting knowledge graph(s)

► Result from Selecting knowledge graph(s)

Querying knowledge graph

► Thought for 96 seconds

► Result from Querying knowledge graph

Validating and executing SPARQL query

Now I have a comprehensive picture. Let me provide the final answer.

The DNB knowledge graph contains **2,372 distinct musical work entries** (GND `MusicalWork` entities) for Johann Sebastian Bach (GND URI: <https://d-nb.info/gnd/11850553X>). Of these, **1,068** have a key designation and **2,254** have instrumentation information.

Each work entry is linked via `gnd:firstComposer` and carries `gnd:preferredNameForTheWork` for the title, `gnd:keyOfTheWork` for key, and `gnd:mediumOfPerformanceAsLiteral` for instrumentation. Works with multiple instruments produce multiple rows (one per instrument).

Representative sample of Bach's musical entries in DNB

Work	Title	Key	Instrumentation
gnd/300005237	Adagios, Klavier, BWV 968	G-Dur	Klavier
gnd/1172991782	Air mit Variationen, BWV 991	c-Moll	Klavier
gnd/300005245	Allabreve, BWV 589	D-Dur	Orgel
gnd/300006020	Choralbearbeitungen, BWV 714-740. Fuga sopra il magnificat	d-Dorisch	Orgel
gnd/1031636501	Choralbearbeitungen verschiedener Art. Komm, Heiliger Geist, Herre Gott	G-Dur	Orgel
gnd/300011881	Das wohltemperierte Klavier	—	Klavier

gnd/300011903	Das wohltemperierte Klavier, Teil 1. Nr. 1	C-Dur	Klavier
gnd/300833024	Das wohltemperierte Klavier, Teil 1. Nr. 1. Fuga	C-Dur	Klavier
gnd/300560133	Das wohltemperierte Klavier, Teil 1. Nr. 2	c-Moll	Klavier
gnd/1076375057	Das wohltemperierte Klavier, Teil 1. Nr. 13	Fis-Dur	Klavier
gnd/300229356	Das wohltemperierte Klavier, Teil 1. Nr. 14	fis-Moll	Klavier
gnd/30032572X	Das wohltemperierte Klavier, Teil 1. Nr. 15	G-Dur	Klavier
gnd/300205651	Das wohltemperierte Klavier, Teil 1. Nr. 16	g-Moll	Klavier
gnd/1076375383	Das wohltemperierte Klavier, Teil 1. Nr. 17	As-Dur	Klavier
gnd/1076375421	Das wohltemperierte Klavier, Teil 1. Nr. 18	gis-Moll	Klavier
gnd/1038285364	Das wohltemperierte Klavier, Teil 1. Nr. 19. Fuga	A-Dur	Klavier
gnd/1038285771	Das wohltemperierte Klavier, Teil 1. Nr. 8. Fuga	es-Moll	Klavier
gnd/1034480618	Das wohltemperierte Klavier, Teil 1. Präludium und Fuge, BWV 866	B-Dur	Klavier
gnd/1027997031	Das wohltemperierte Klavier, Teil 2. Nr. 13. Fuga	Fis-Dur	Klavier
gnd/1028354371	Das wohltemperierte Klavier, Teil 2. Nr. 3	Cis-Dur	Klavier
gnd/102835438X	Das wohltemperierte Klavier, Teil 2. Nr. 4	cis-Moll	Klavier
gnd/1034852647	Inventionen und Sinfonien. Invention, BWV 778	e-Moll	Klavier
gnd/1201316634	Brandenburgische Konzerte. Konzert (D-Dur). Frühfassung	D-Dur	Basso continuo; Cembalo; Flöte; Viola; Violine
gnd/1038751128	Die Brandenburgischen Konzerte. Sinfonia (F-Dur)	F-Dur	Basso continuo; Fagott; Jagdhorn; Oboe; Viola; Violine

gnd/1027331351	Messen, BWV 232. Crucifixus	h-Moll	Basso continuo; Gemischter Chor; Querflöte; Viola; Violine
gnd/1042470049	Messen, BWV 232. Et in unum	G-Dur	Alt; Basso continuo; Oboe d'Amore; Sopran
gnd/300006772	Ach Gott, vom Himmel sieh darein	—	Violine; Viola; Tenor; Posaune; Oboe; Gemischter Chor; Basso continuo; Bass; Alt
gnd/300008643	Ach, ich sehe, itzt, da ich zur Hochzeit gehe	a-Moll	Violine; Alt; Bass; Basso continuo; Gemischter Chor; Sopran; Tenor; Viola
gnd/30000754X	Also hat Gott die Welt geliebt	—	Bass; Posaune; Sopran; Taille de hautbois; Viola; Violine; Violoncello piccolo; Zink; Oboe; Horn; Gemischter Chor; Basso continuo
gnd/300826613	Alles mit Gott und nichts ohn' ihn	—	Violine; Viola; Sopran; Basso continuo
gnd/300186045	Arien aus der 2. Fassung der Johannespassion	—	—
gnd/300005261	Arien, Orgel, BWV 587	F-Dur	Orgel
gnd/1135982678	Allemanden, Klavier, BWV 836-837	—	Cembalo; Klavier

Summary statistics

Metric	Count
Total musical works for J.S. Bach	2,372
Works with key designation (gnd:keyOfTheWork)	1,068
Works with instrumentation (gnd:mediumOfPerformanceAsLiteral)	2,254

Key designations observed

Keys range across all 24 major/minor keys (German notation: C-Dur, c-Moll, Cis-Dur, cis-Moll, D-Dur, d-Moll, etc.), plus modal designations like **d-Dorisch**. German key naming conventions are used throughout (e.g., "H-Dur" for B-major, "B-Dur" for B^b-major, "h-Moll" for B-minor).

Instrumentation patterns

- **Keyboard works** (Klavier, Orgel, Cembalo): typically single-instrument entries
- **Cantatas**: multi-instrument entries including Gemischter Chor, Sopran/Alt/Tenor/Bass, Violine, Viola, Basso continuo, Oboe, Horn, Trompete, Posaune, etc.
- **Concertos**: orchestral forces with Basso continuo, solo instruments
- Some works have no instrumentation recorded (e.g., aria compilations)

The SPARQL has been executed:

```
PREFIX gnd: <https://d-nb.info/standards/elementset/gnd#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
SELECT ?work ?title (GROUP_CONCAT(DISTINCT ?key; separator="; ") AS ?keys)
(GROUP_CONCAT(DISTINCT ?instr; separator="; ") AS ?instrumentation)
WHERE {
    ?work rdf:type gnd:MusicalWork ; gnd:firstComposer <https://d-
nb.info/gnd/11850553X> ; gnd:preferredNameForTheWork ?title .

    OPTIONAL {
        ?work gnd:keyOfTheWork ?key .
    }

    OPTIONAL {
        ?work gnd:mediumOfPerformanceAsLiteral ?instr .
    }
}
GROUP BY ?work ?title
LIMIT 50
```

USER

Build a comprehensive profile of Bach spanning sources, biography, and published editions.

ASSISTANT

Great question! I already have all the data from our three previous queries across the Culture Knowledge Graph, Wikidata, and DNB. Let me synthesize everything into a unified profile.

🎵 Comprehensive Profile: Johann Sebastian Bach

👤 Biography (Wikidata — Q1339)

	Detail
Born	31 March 1685
Died	28 July 1750
Portrait	View Image

Occupations (11 recorded)

Composer · Conductor · Organist · Harpsichordist · Violinist · Music educator · Musicologist · Virtuoso · School teacher · Concertmaster · Choir director

Family

Relation	Name
----------	------

Father	Johann Ambrosius Bach
Mother	Maria Elisabeth Lämmerhirt
1st Wife	Maria Barbara Bach
2nd Wife	Anna Magdalena Bach

20 Children including the notable composers:

- **Wilhelm Friedemann Bach** (Q107277)
- **Carl Philipp Emanuel Bach** (Q76428)
- **Johann Christoph Friedrich Bach** (Q57225)
- **Johann Christian Bach** (Q106641)

Musical Sources & Incipits (Culture KG — RISM)

The Culture Knowledge Graph records **1,073 RISM sources** attributed to the Bach family, containing **1,757 incipits** in Plaine & Easie Code notation.

Bach Family Member	Source Prefix	Sources	Incipits
Johann Sebastian Bach	4670	472	876
C.P.E. Bach, W.F. Bach, J.C.F. Bach	1001	519	769
Johann Ludwig Bach	4525	82	112

Incipit Data Structure

Each incipit (`cto:CT0_0001024`) encodes:

- **Label** — movement position, tempo, title, key, source type, shelfmark
- **Time signature** (`cto:CT0_0001060`)
- **Clef** (`cto:CT0_0001061`)
- **Key signature** (`cto:CT0_0001062`)
- **Melodic notation** (`cto:CT0_0001063`) — Plaine & Easie Code
- **Tonal centre** (`cto:CT0_0001064`)

Representative Incipits

Work	Key	Time Sig	Plaine & Easie (opening)
Sanctus BWV 232/III	D	c/	4 ' 'FD8({DCD})({EDE})/4FD8({EDE})({FEF})/...
St. Matthew Passion BWV 244	e	12/8	4. 'E+8{EFG}4.F+8{FxGA}/{xGFE}4.A+8{AnGF}{GEF}/
Christmas Oratorio BWV 248	D	3/8	,8{CCC}/{C,,G}—/{6,C3CC6C,,G,C,,G}/...
Magnificat BWV 243a	E ^b	3/4	6 '{B' 'EDC}'{'BAGA'}{B' 'C'B' 'C'}/...
Trauerode BWV 198	b	c	4 ' 'D6—{D6.C3D}8{ 'FE+}{6.3E' 'EDE}/...

Sources are primarily autograph manuscripts held at the **Staatsbibliothek zu Berlin** (shelfmarks like *D-B Mus.ms. Bach P ...*).

Published Editions & Works (DNB — GND)

The DNB records **2,372 MusicalWork entities** for Bach (GND: 11850553X), linked via `gnd:firstComposer` .

Metric	Count
Total musical works	2,372
Works with key designation	1,068
Works with instrumentation	2,254

Key Designations

All 24 major/minor keys are represented, using German notation (e.g., *H-Dur* = B major, *B-Dur* = B^b major, *h-Moll* = B minor), plus modal keys like *d-Dorisch*.

Instrumentation Patterns

Genre	Typical Instrumentation
Keyboard works	Klavier, Orgel, Cembalo (single instrument)
Cantatas	Gemischter Chor, SATB soloists, Violine, Viola, Basso continuo, Oboe, Horn, Trompete, Posaune
Concertos	Basso continuo + orchestral/solo forces
Organ chorales	Orgel alone

Representative Works

Title	Key	Instrumentation
Das wohltemperierte Klavier, Teil 1 Nr. 1	C-Dur	Klavier
Das wohltemperierte Klavier, Teil 1 Nr. 2	c-Moll	Klavier
Inventionen, BWV 778	e-Moll	Klavier
Brandenburgische Konzerte (D-Dur, Frühfassung)	D-Dur	Basso continuo; Cembalo; Flöte; Viola; Violine
Brandenburgische Konzerte, Sinfonia (F-Dur)	F-Dur	Basso continuo; Fagott; Jagdhorn; Oboe; Viola; Violine
Messen BWV 232, Crucifixus	h-Moll	Basso continuo; Gemischter Chor; Querflöte; Viola; Violine

Messen BWV 232, Et in unum	G-Dur	Alt; Basso continuo; Oboe d'Amore; Sopran
Allabreve BWV 589	D-Dur	Orgel
Choralbearbeitungen, Fuga sopra il magnificat	d-Dorisch	Orgel
Ach, ich sehe, itzt, da ich zur Hochzeit gehe	a-Moll	Violine; Alt; Bass; Basso continuo; Gemischter Chor; Sopran; Tenor; Viola



Cross-KG Summary

Dimension	Knowledge Graph	Key Finding
Biography & Family	Wikidata	b. 1685, d. 1750; 11 occupations; 2 wives, 20 children
Manuscript Sources	Culture KG (RISM)	1,073 sources, 1,757 incipits in Plaine & Easie Code
Published Works	DNB (GND)	2,372 MusicalWork entries; 1,068 with keys, 2,254 with instrumentation

Together, these three knowledge graphs provide a remarkably complete picture: **Wikidata** gives the biographical and familial context, the **Culture KG** preserves the physical manuscript tradition with searchable melodic incipits, and the **DNB** catalogues the full breadth of Bach's compositional output with structured metadata on keys and forces.