

Overview in General

This file contains a general overview of the data in the graph including node labels and relationships types.

References

- [jqassistant](#)
- [Neo4j Python Driver](#)

Node Labels

Table 1a - Highest node count by label combination

Lists the 30 label combinations with the highest number of nodes. The labels with the lowest node count are listed in table 1b. The total list would sum up to the total number of labels (100%).

The whole table can be found in the CSV report `Node_label_combination_count`.

Total number of nodes: 68826

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Java, ByteCode, Parameter]	11184	16.249673
1	[Java, ByteCode, Member, Method]	10627	15.440386
2	[File, Git, Log]	7804	11.338738
3	[Git, Commit, Log]	7618	11.068492
4	[Java, ByteCode, Bound, ParameterizedType]	6537	9.497864
5	[Java, ByteCode, Bound]	6308	9.165141
6	[Java, ByteCode, Member, Field]	2846	4.135065
7	[Java, ByteCode, Bound, WildcardType]	2722	3.954901
8	[Java, Value, ByteCode, Annotation]	2225	3.232790
9	[Java, ByteCode, Member, Constructor, Method]	1649	2.395897
10	[Xml, Element]	1534	2.228809
11	[Xml, Text]	1016	1.476186
12	[Java, ByteCode, Bound, TypeVariable]	988	1.435504
13	[Java, ByteCode, Member, Method, Lambda]	767	1.114404
14	[Type, File, Java, ByteCode, Class]	699	1.015605
15	[Type, File, Java, ByteCode, JavaType]	596	0.865952
16	[Type, File, Java, ByteCode, ResolvedDuplicate...	542	0.787493
17	[Java, ByteCode, GenericDeclaration, Member, M...	525	0.762793
18	[Java, Value, ByteCode, Primitive]	467	0.678523
19	[Git, Author, Log]	260	0.377764
20	[Type, File, Java, ByteCode, Class, GenericDec...	215	0.312382
21	[Type, File, Java, ByteCode, ExternalType]	194	0.281870
22	[Type, File, Java, ByteCode, Interface]	166	0.241188
23	[Java, ByteCode, Bound, GenericArrayType]	144	0.209223
24	[Java, Value, ByteCode, Enum]	142	0.206317
25	[Maven, Dependency]	116	0.168541
26	[Value, Property]	109	0.158370
27	[Package, File, Directory, Java]	107	0.155465
28	[Value, Array]	104	0.151106
29	[Value, ManifestEntry]	91	0.132217

Chart 1a - Highest node count by label combination

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in Chart 1b.

<Figure size 640x480 with 0 Axes>

Nodes per label combination (more than 0.5% overall)

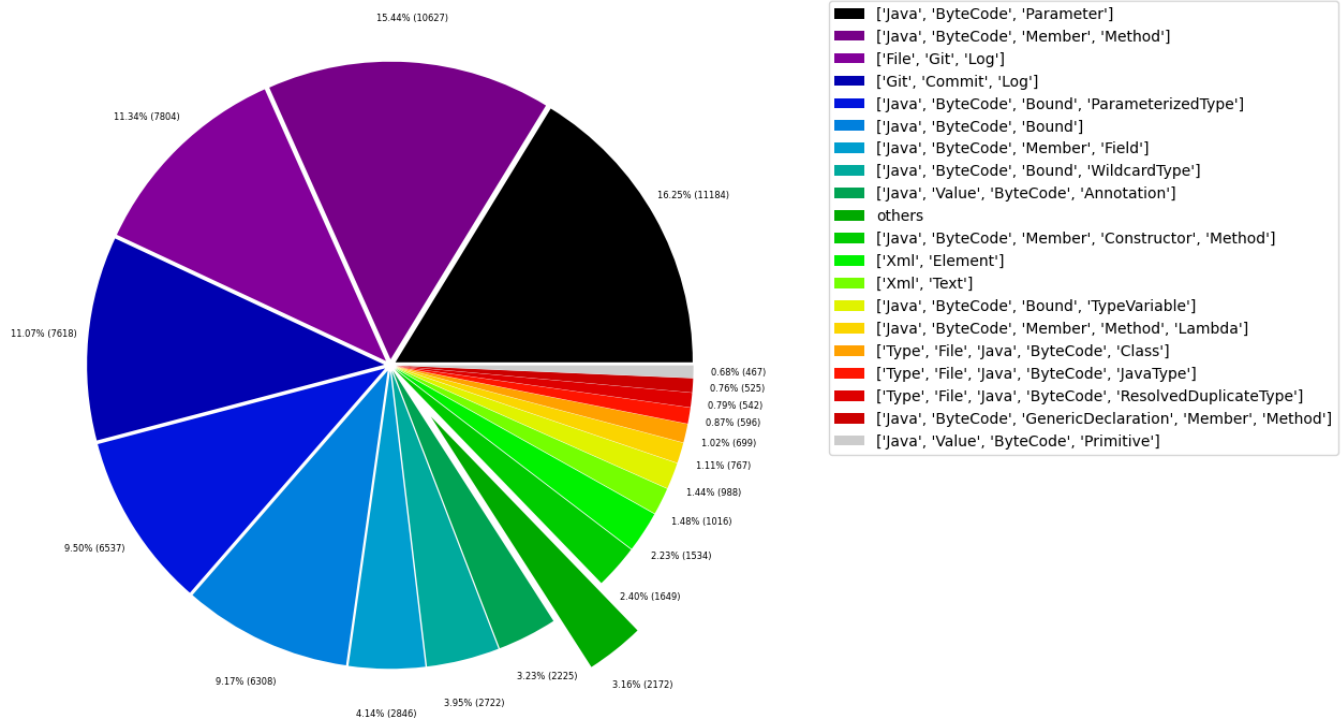


Table 1b - Lowest node count by label combination

Lists the 30 label combinations with the lowest number of nodes until they reach 0.5% of the total node count, which are shown above.

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Repository, Git]	1	0.001453
1	[Analyze, Task, JQAssistant]	1	0.001453
2	[Maven, Exclusion]	1	0.001453
3	[Java, ByteCode, GenericDeclaration, Member, C...	3	0.004359
4	[Type, File, Java, ByteCode, Void]	6	0.008718
5	[File, Maven, Xml, Pom, Document]	6	0.008718
6	[Java, ManifestSection]	6	0.008718
7	[File, Java, Manifest]	6	0.008718
8	[Artifact, File, Jar, Archive, Zip, Java]	6	0.008718
9	[File, Java, Properties]	8	0.011624
10	[File, Java, ServiceLoader]	9	0.013076
11	[Xml, Attribute]	12	0.017435
12	[Maven, ExecutionGoal]	14	0.020341
13	[Maven, PluginExecution]	14	0.020341
14	[Maven, Plugin]	16	0.023247
15	[Maven, Configuration]	16	0.023247
16	[JQAssistant, Rule, Concept]	19	0.027606
17	[Type, File, Java, ByteCode, PrimitiveType]	21	0.030512
18	[Xml, Namespace]	24	0.034871
19	[Type, File, Java, ByteCode, Enum]	25	0.036323
20	[Java, Value, ByteCode, Class]	28	0.040682
21	[File, Directory]	29	0.042135
22	[Type, File, Java, ByteCode, Annotation]	40	0.058118
23	[Type, File, Java, ByteCode, ExternalAnnotatio...	65	0.094441
24	[Artifact, Maven]	69	0.100253
25	[Type, File, Java, ByteCode, GenericDeclaratio...	79	0.114782
26	[Value, ManifestEntry]	91	0.132217
27	[Value, Array]	104	0.151106
28	[Package, File, Directory, Java]	107	0.155465
29	[Value, Property]	109	0.158370

Chart 1b - Lowest node count by label combination

Shows the lowest (less than 0.5% overall) node count label combinations. Therefore, this plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>

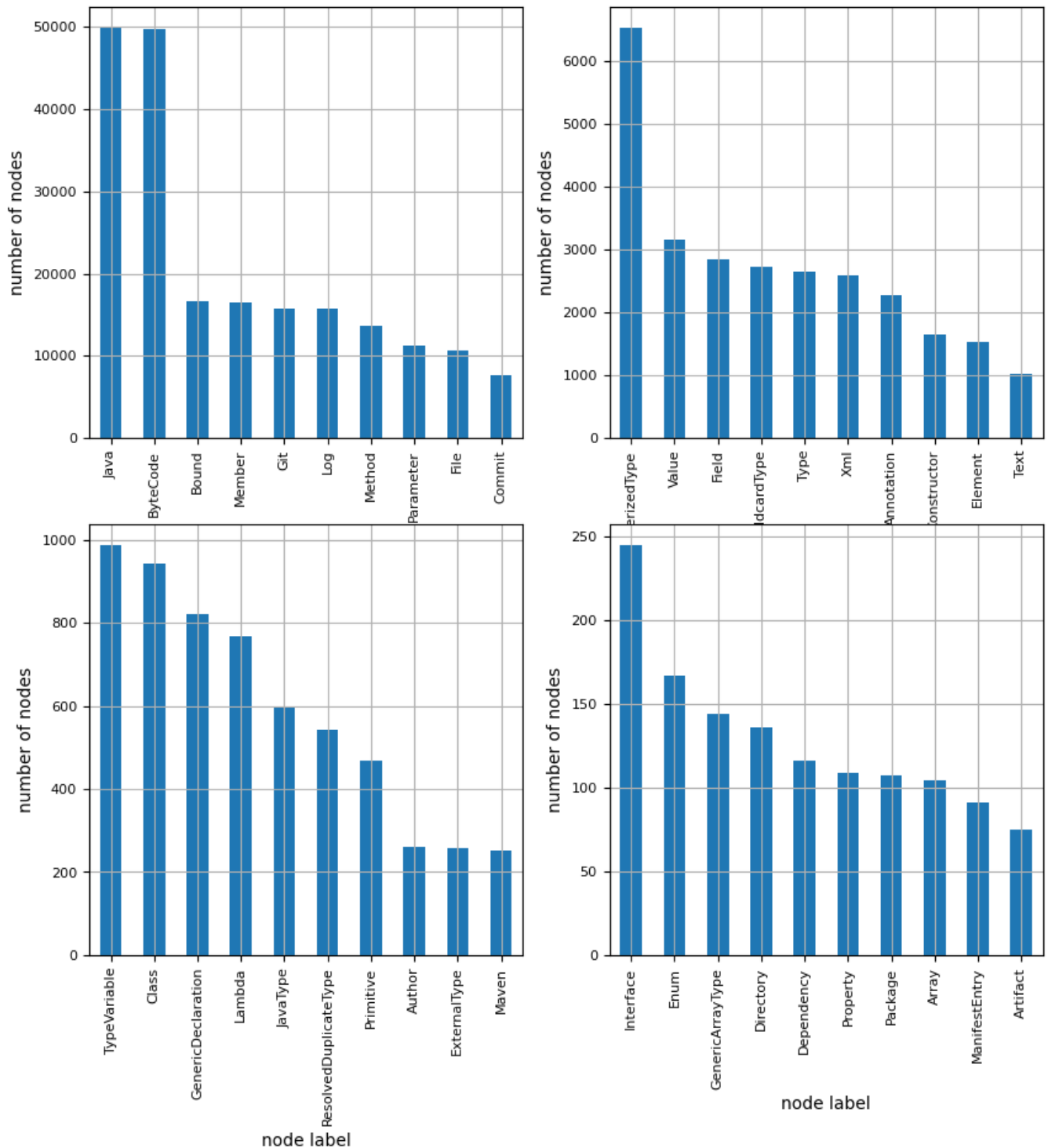
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Java	49952	72.577224
1	ByteCode	49810	72.370906
2	Bound	16699	24.262633
3	Member	16417	23.852904
4	Git	15683	22.786447
5	Log	15682	22.784994
6	Method	13571	19.717839
7	Parameter	11184	16.249673
8	File	10623	15.434574
9	Commit	7618	11.068492
10	ParameterizedType	6537	9.497864
11	Value	3166	4.600006
12	Field	2846	4.135065
13	WildcardType	2722	3.954901
14	Type	2648	3.847383
15	Xml	2592	3.766019
16	Annotation	2265	3.290908
17	Constructor	1652	2.400256
18	Element	1534	2.228809
19	Text	1016	1.476186
20	TypeVariable	988	1.435504
21	Class	942	1.368669
22	GenericDeclaration	822	1.194316
23	Lambda	767	1.114404
24	JavaType	596	0.865952
25	ResolvedDuplicateType	542	0.787493
26	Primitive	467	0.678523
27	Author	260	0.377764
28	ExternalType	259	0.376311
29	Maven	252	0.366141
30	Interface	245	0.355970
31	Enum	167	0.242641
32	GenericArrayType	144	0.209223
33	Directory	136	0.197600
34	Dependency	116	0.168541
35	Property	109	0.158370
36	Package	107	0.155465
37	Array	104	0.151106
38	ManifestEntry	91	0.132217
39	Artifact	75	0.108970

Chart 1c - Highest node count by label

Shows the 40 labels with the highest number of nodes.

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Node count by label



Relationship Types

Table 2a - Highest relationship count by type

Lists the 30 relationship types with the highest number of occurrences. The whole table can be found in the CSV report `Relationship_type_count` .

Total number of relationships: 247782

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	45786	18.478340
1	INVOKES	29631	11.958496
2	OF_TYPE	17618	7.110282
3	DEPENDS_ON	17426	7.032795
4	DECLARES	16779	6.771678
5	OF_RAW_TYPE	15183	6.127564
6	HAS	11884	4.796151
7	RETURNS	10623	4.287236
8	HAS_FILE	7804	3.149543
9	READS	7684	3.101113
10	AUTHORED	7618	3.074477
11	HAS_COMMIT	7618	3.074477
12	HAS_ACTUAL_TYPE_ARGUMENT	7495	3.024836
13	HAS_PARENT	6162	2.486863
14	OF_GENERIC_TYPE	5346	2.157542
15	SIMILAR	3416	1.378631
16	RETURNS_GENERIC	3250	1.311637
17	WRITES	3065	1.236974
18	CONTAINS	3027	1.221638
19	RESOLVES_TO	2914	1.176034
20	ANNOTATED_BY	2213	0.893124
21	HAS_FIRST_CHILD	1534	0.619093
22	HAS_LAST_CHILD	1534	0.619093
23	HAS_ELEMENT	1522	0.614250
24	REQUIRES	1424	0.574699
25	HAS_UPPER_BOUND	1405	0.567031
26	EXTENDS	1267	0.511337
27	HAS_TEXT	1016	0.410038
28	HAS_SIBLING	1004	0.405195
29	DECLARES_TYPE_PARAMETER	971	0.391877

Chart 2a - Highest relationship count by type

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in the second chart.

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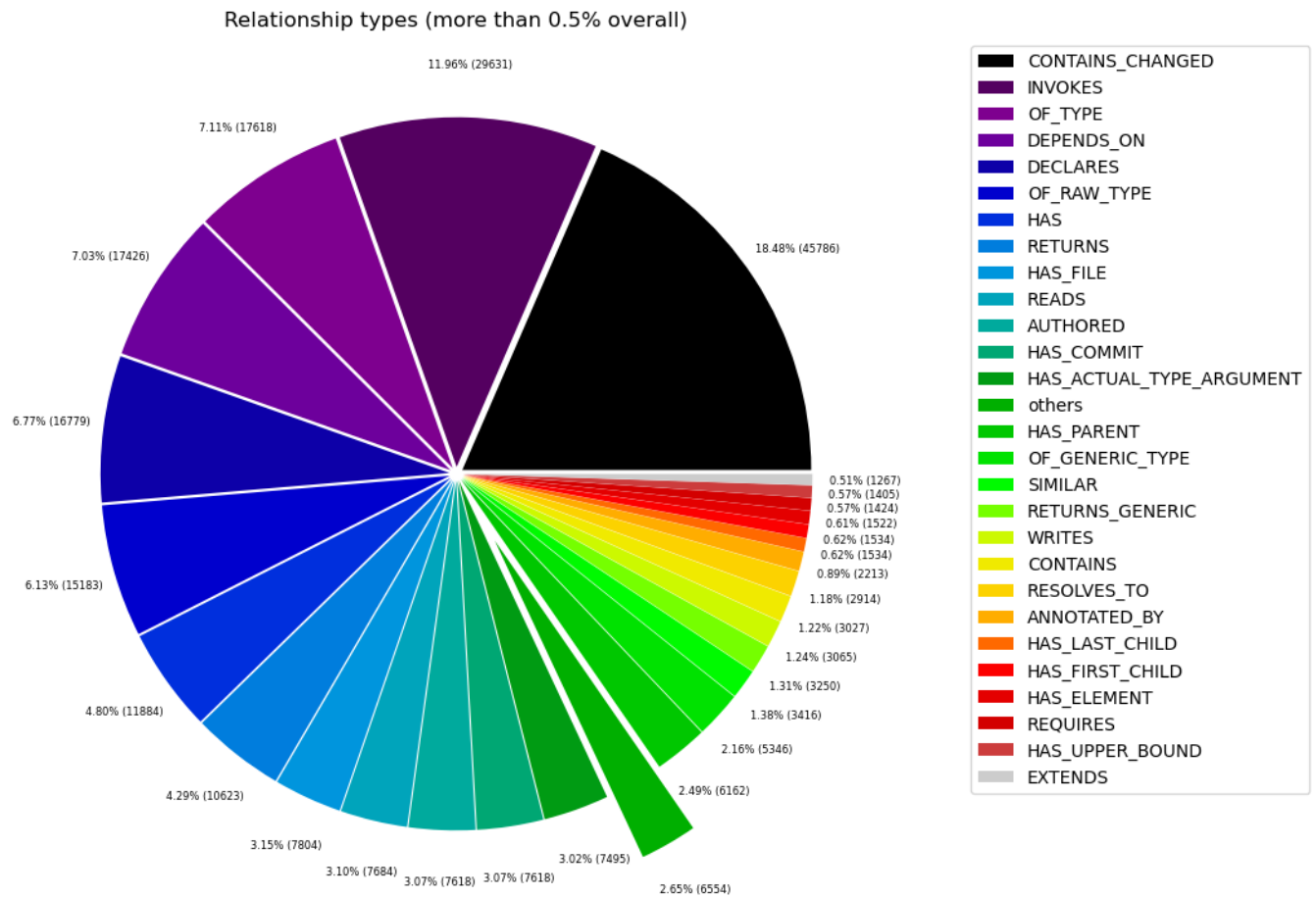


Table 2b - Lowest relationship count by type

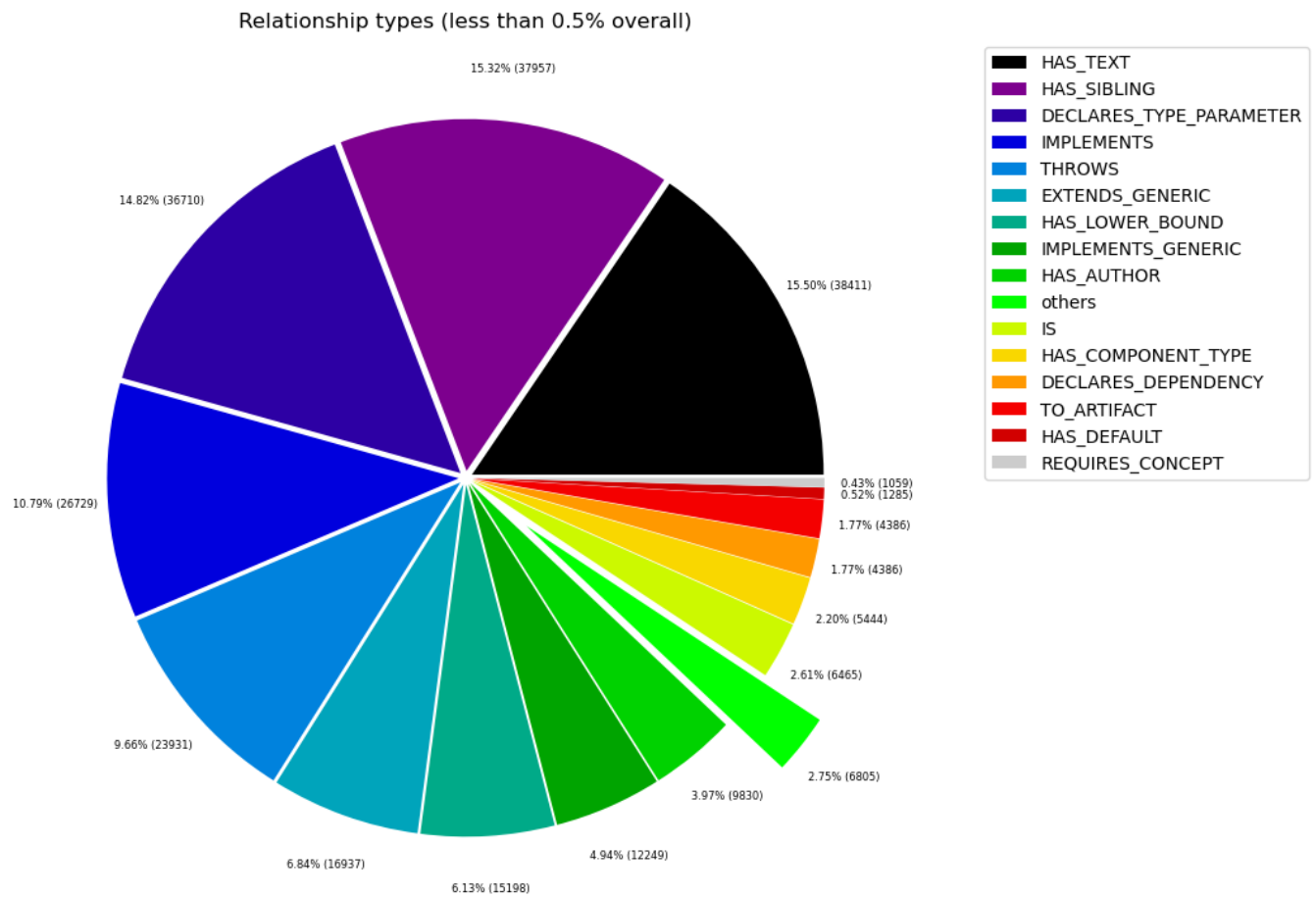
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	EXCLUDES	1	0.000404
1	THROWS_GENERIC	5	0.002018
2	DESCRIBES	6	0.002421
3	HAS_ROOT_ELEMENT	8	0.003229
4	OF_NAMESPACE	12	0.004843
5	HAS_ATTRIBUTE	12	0.004843
6	HAS_GOAL	14	0.005650
7	HAS_EXECUTION	14	0.005650
8	USES_PLUGIN	16	0.006457
9	IS_ARTIFACT	16	0.006457
10	HAS_CONFIGURATION	16	0.006457
11	REQUIRES_TYPE_PARAMETER	17	0.006861
12	INCLUDES_CONCEPT	19	0.007668
13	DECLARES_NAMESPACE	24	0.009686
14	REQUIRES_CONCEPT	28	0.011300
15	HAS_DEFAULT	34	0.013722
16	TO_ARTIFACT	116	0.046815
17	DECLARES_DEPENDENCY	116	0.046815
18	HAS_COMPONENT_TYPE	144	0.058116
19	IS	171	0.069012
20	HAS_AUTHOR	260	0.104931
21	IMPLEMENTS_GENERIC	324	0.130760
22	HAS_LOWER_BOUND	402	0.162239
23	EXTENDS_GENERIC	448	0.180804
24	THROWS	633	0.255466
25	IMPLEMENTS	707	0.285331
26	DECLARES_TYPE_PARAMETER	971	0.391877
27	HAS_SIBLING	1004	0.405195
28	HAS_TEXT	1016	0.410038

Chart 2b - Lowest relationship count by type

Shows the lowest (less than 0.5% overall) relationship types. This plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>



Node labels with their relationships

Table 3a - Highest relationship count by node labels and relationship type

Lists the 30 node labels and their relationship types with the highest number of occurrences.

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
0	[Git, Commit, Log]	CONTAINS_CHANGED	[File, Git, Log]	45786		7618
1	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	18184		10547
2	[Repository, Git]	HAS_FILE	[File, Git, Log]	7804		1
3	[Repository, Git]	HAS_COMMIT	[Git, Commit, Log]	7618		1
4	[Git, Author, Log]	AUTHORED	[Git, Commit, Log]	7618		260
5	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	7303		10547
6	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	6939		10547
7	[Git, Commit, Log]	HAS_PARENT	[Git, Commit, Log]	6156		7618
8	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	5720		11184
9	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3213		6308
10	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	2777		6537
11	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2722		6537
12	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2434		11184
13	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2228		6537
14	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	1971		1649
15	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	1889		10547
16	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	1842		2225
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	1818		11184
18	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1746		1649
19	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1724		10547
20	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	1710		1649
21	[Java, ByteCode, Parameter]	ANNOTATED_BY	[Java, Value, ByteCode, Annotation]	1594		11184
22	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1535		1649
23	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1534		767
24	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1527		6537
25	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	1522		1534
26	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1464		10547
27	[Type, File, Java, ByteCode, JavaType]	DECLARES	[Java, ByteCode, Member, Method]	1277		596
28	[Java, ByteCode, GenericDeclaration, Member, M...	INVOKES	[Java, ByteCode, Member, Method]	1276		510

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
29	[Java, ByteCode, Member, Constructor, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1221		1649

Graph Density

```

total_number_of_nodes (vertices): 68826
total_number_of_relationships (edges): 247782
-> total directed graph density: 5.2308347938988454e-05
-> total directed graph density in percent: 0.005230834793898845

```