

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: 68812

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Java, ByteCode, Parameter]	11184	16.252979
1	[Java, ByteCode, Member, Method]	10617	15.428995
2	[File, Git, Log]	7804	11.341045
3	[Commit, Git, Log]	7618	11.070743
4	[Java, ByteCode, Bound, ParameterizedType]	6537	9.499797
5	[Java, ByteCode, Bound]	6308	9.167006
6	[Java, ByteCode, Member, Field]	2846	4.135907
7	[Java, ByteCode, Bound, WildcardType]	2722	3.955705
8	[Java, Value, ByteCode, Annotation]	2225	3.233448
9	[Java, ByteCode, Member, Constructor, Method]	1646	2.392025
10	[Xml, Element]	1534	2.229262
11	[Xml, Text]	1016	1.476487
12	[Java, ByteCode, Bound, TypeVariable]	988	1.435796
13	[Java, ByteCode, Member, Method, Lambda]	767	1.114631
14	[Type, File, Java, ByteCode, Class]	699	1.015811
15	[Type, File, Java, ByteCode, JavaType]	596	0.866128
16	[Type, File, Java, ByteCode, ResolvedDuplicate...	542	0.787653
17	[Java, ByteCode, GenericDeclaration, Member, M...	525	0.762948
18	[Java, Value, ByteCode, Primitive]	467	0.678661
19	[Author, Git, Log]	260	0.377841
20	[Type, File, Java, ByteCode, Class, GenericDec...	215	0.312446
21	[Type, File, Java, ByteCode, ExternalType]	194	0.281928
22	[Type, File, Java, ByteCode, Interface]	166	0.241237
23	[Java, ByteCode, Bound, GenericArrayType]	144	0.209266
24	[Java, Value, ByteCode, Enum]	142	0.206359
25	[Maven, Dependency]	116	0.168575
26	[Value, Property]	109	0.158403
27	[Package, File, Directory, Java]	107	0.155496
28	[Value, Array]	104	0.151136
29	[Value, ManifestEntry]	91	0.132244

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)

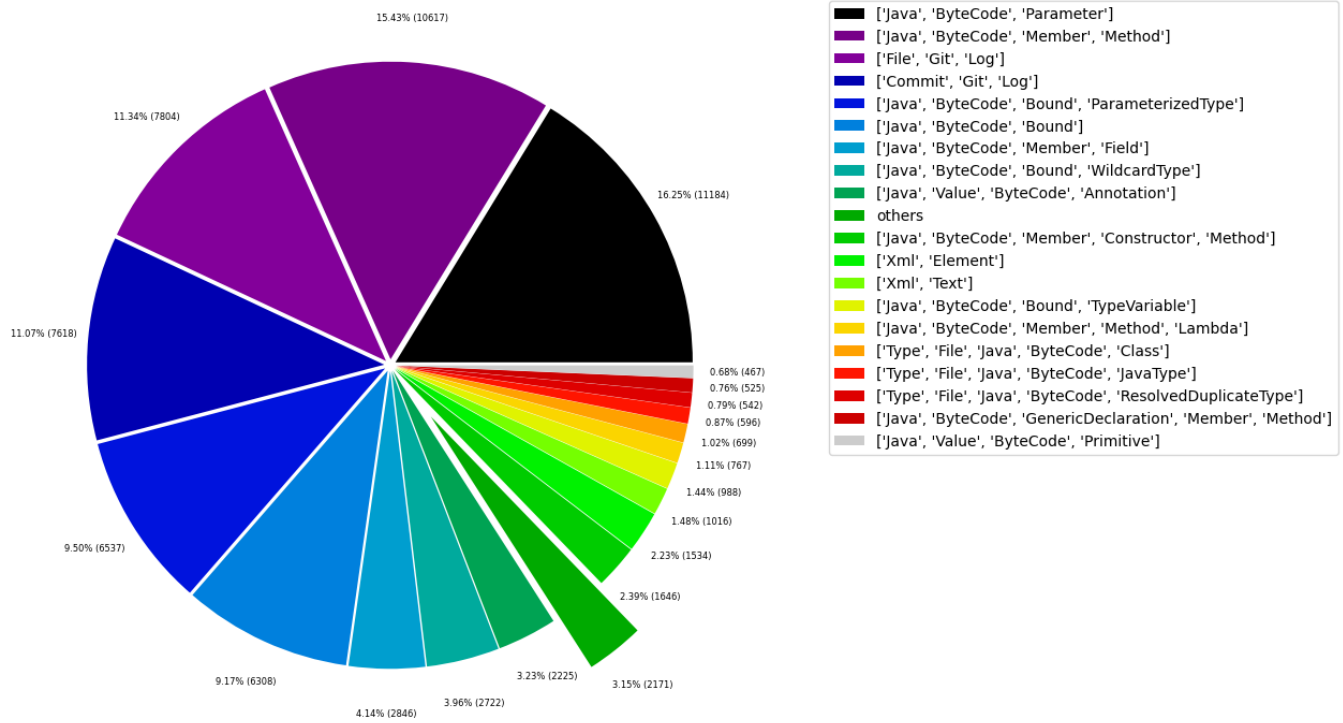


Table 1b - Lowest node count by label combination

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	[Analyze, Task, JQAssistant]	1	0.001453
1	[Maven, Exclusion]	1	0.001453
2	[Java, ByteCode, GenericDeclaration, Member, C...	3	0.004360
3	[Type, File, Java, ByteCode, Void]	6	0.008719
4	[File, Maven, Xml, Pom, Document]	6	0.008719
5	[Java, ManifestSection]	6	0.008719
6	[File, Java, Manifest]	6	0.008719
7	[Artifact, File, Jar, Archive, Zip, Java]	6	0.008719
8	[File, Java, Properties]	8	0.011626
9	[File, Java, ServiceLoader]	9	0.013079
10	[Xml, Attribute]	12	0.017439
11	[Maven, ExecutionGoal]	14	0.020345
12	[Maven, PluginExecution]	14	0.020345
13	[Maven, Plugin]	16	0.023252
14	[Maven, Configuration]	16	0.023252
15	[JQAssistant, Rule, Concept]	19	0.027611
16	[Type, File, Java, ByteCode, PrimitiveType]	21	0.030518
17	[Xml, Namespace]	24	0.034878
18	[Type, File, Java, ByteCode, Enum]	25	0.036331
19	[Java, Value, ByteCode, Class]	28	0.040691
20	[File, Directory]	29	0.042144
21	[Type, File, Java, ByteCode, Annotation]	40	0.058129
22	[Type, File, Java, ByteCode, ExternalAnnotatio...	65	0.094460
23	[Artifact, Maven]	69	0.100273
24	[Type, File, Java, ByteCode, GenericDeclaratio...	79	0.114806
25	[Value, ManifestEntry]	91	0.132244
26	[Value, Array]	104	0.151136
27	[Package, File, Directory, Java]	107	0.155496
28	[Value, Property]	109	0.158403
29	[Maven, Dependency]	116	0.168575

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>

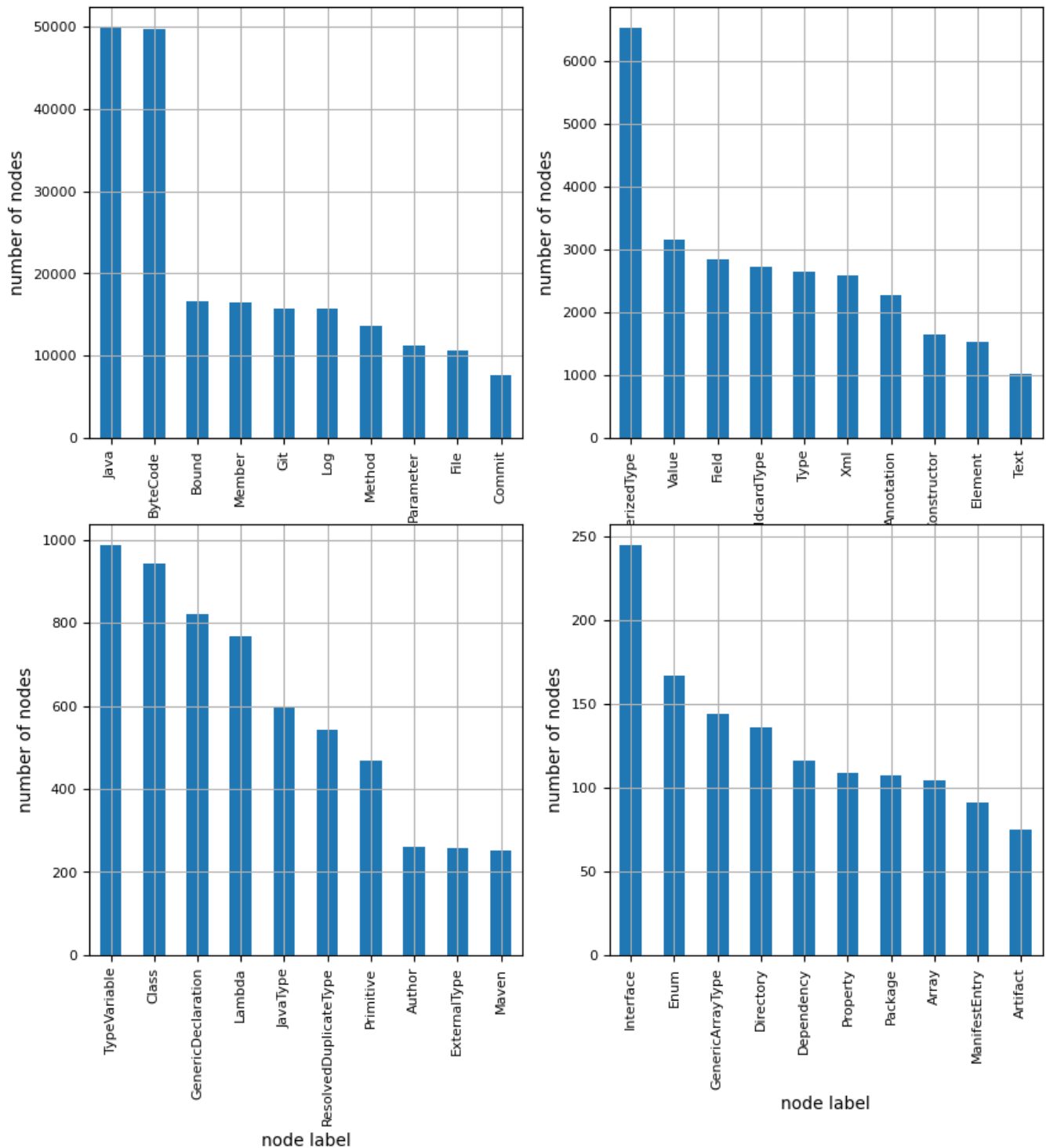
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Java	49939	72.573098
1	ByteCode	49797	72.366738
2	Bound	16699	24.267570
3	Member	16404	23.838865
4	Git	15682	22.789630
5	Log	15682	22.789630
6	Method	13558	19.702959
7	Parameter	11184	16.252979
8	File	10623	15.437714
9	Commit	7618	11.070743
10	ParameterizedType	6537	9.499797
11	Value	3166	4.600942
12	Field	2846	4.135907
13	WildcardType	2722	3.955705
14	Type	2648	3.848166
15	Xml	2592	3.766785
16	Annotation	2265	3.291577
17	Constructor	1649	2.396384
18	Element	1534	2.229262
19	Text	1016	1.476487
20	TypeVariable	988	1.435796
21	Class	942	1.368947
22	GenericDeclaration	822	1.194559
23	Lambda	767	1.114631
24	JavaType	596	0.866128
25	ResolvedDuplicateType	542	0.787653
26	Primitive	467	0.678661
27	Author	260	0.377841
28	ExternalType	259	0.376388
29	Maven	252	0.366215
30	Interface	245	0.356043
31	Enum	167	0.242690
32	GenericArrayType	144	0.209266
33	Directory	136	0.197640
34	Dependency	116	0.168575
35	Property	109	0.158403
36	Package	107	0.155496
37	Array	104	0.151136
38	ManifestEntry	91	0.132244
39	Artifact	75	0.108993

Chart 1c - Highest node count by label

Shows the 40 labels with the highest number of nodes.

<Figure size 640x480 with 0 Axes>

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: 232066

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	45786	19.729732
1	INVOKES	29614	12.761025
2	OF_TYPE	17618	7.591806
3	DEPENDS_ON	17426	7.509071
4	DECLARES	16766	7.224669
5	OF_RAW_TYPE	15183	6.542535
6	HAS	11884	5.120957
7	RETURNS	10623	4.577577
8	READS	7684	3.311127
9	AUTHORED	7618	3.282687
10	HAS_ACTUAL_TYPE_ARGUMENT	7495	3.229685
11	HAS_PARENT	6162	2.655279
12	OF_GENERIC_TYPE	5346	2.303655
13	SIMILAR	3416	1.471995
14	RETURNS_GENERIC	3250	1.400464
15	WRITES	3065	1.320745
16	CONTAINS	3027	1.304370
17	RESOLVES_TO	2910	1.253954
18	ANNOTATED_BY	2213	0.953608
19	HAS_FIRST_CHILD	1534	0.661019
20	HAS_LAST_CHILD	1534	0.661019
21	HAS_ELEMENT	1522	0.655848
22	REQUIRES	1424	0.613619
23	HAS_UPPER_BOUND	1405	0.605431
24	EXTENDS	1267	0.545965
25	HAS_TEXT	1016	0.437806
26	HAS_SIBLING	1004	0.432636
27	DECLARES_TYPE_PARAMETER	971	0.418415
28	IMPLEMENTS	707	0.304655
29	THROWS	633	0.272767

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.

<Figure size 640x480 with 0 Axes>

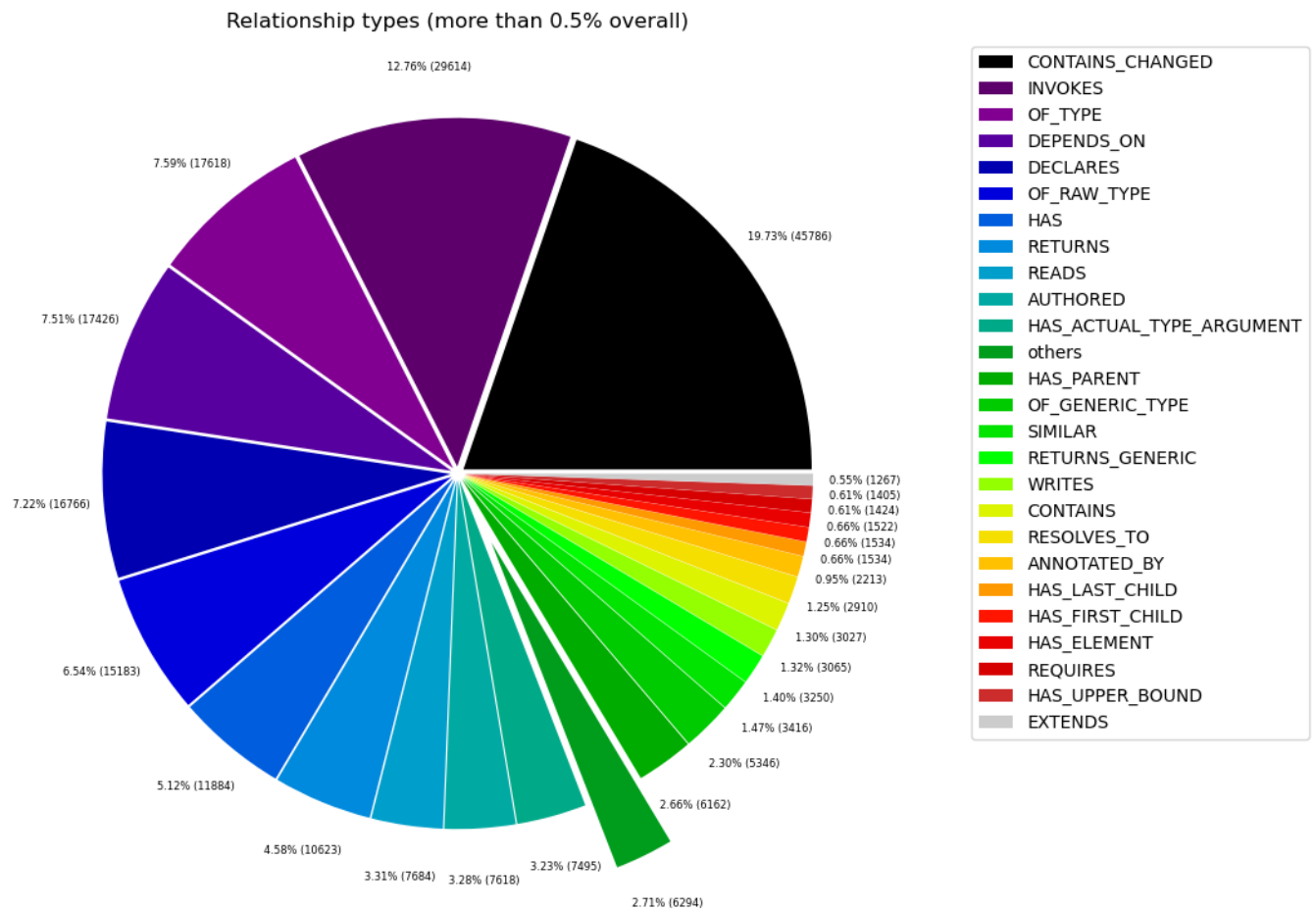


Table 2b - Lowest relationship count by type

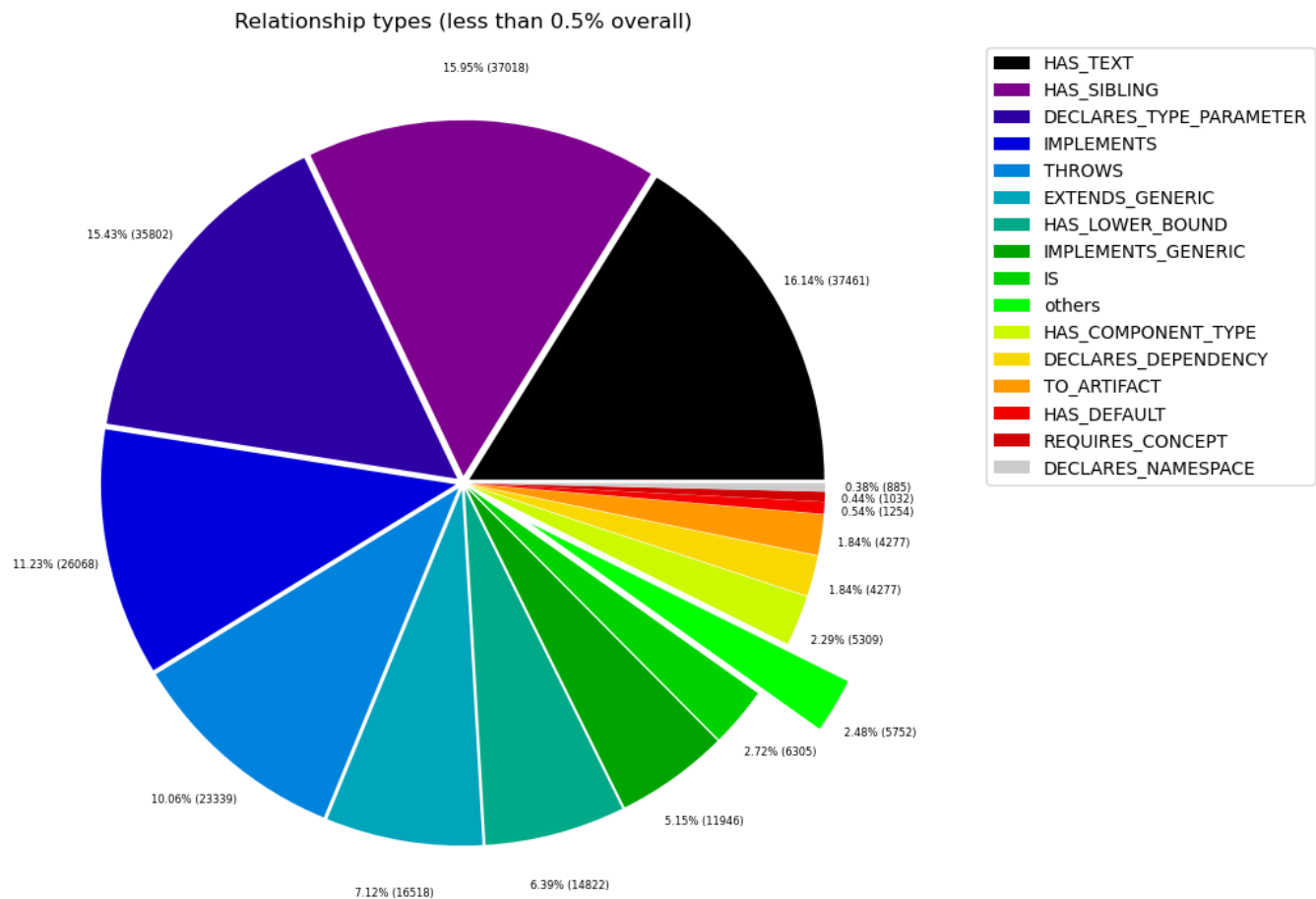
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	EXCLUDES	1	0.000431
1	THROWS_GENERIC	5	0.002155
2	DESCRIBES	6	0.002585
3	HAS_ROOT_ELEMENT	8	0.003447
4	OF_NAMESPACE	12	0.005171
5	HAS_ATTRIBUTE	12	0.005171
6	HAS_GOAL	14	0.006033
7	HAS_EXECUTION	14	0.006033
8	USES_PLUGIN	16	0.006895
9	IS_ARTIFACT	16	0.006895
10	HAS_CONFIGURATION	16	0.006895
11	REQUIRES_TYPE_PARAMETER	17	0.007326
12	INCLUDES_CONCEPT	19	0.008187
13	DECLARES_NAMESPACE	24	0.010342
14	REQUIRES_CONCEPT	28	0.012066
15	HAS_DEFAULT	34	0.014651
16	TO_ARTIFACT	116	0.049986
17	DECLARES_DEPENDENCY	116	0.049986
18	HAS_COMPONENT_TYPE	144	0.062051
19	IS	171	0.073686
20	IMPLEMENTS_GENERIC	324	0.139615
21	HAS_LOWER_BOUND	402	0.173227
22	EXTENDS_GENERIC	448	0.193049
23	THROWS	633	0.272767
24	IMPLEMENTS	707	0.304655
25	DECLARES_TYPE_PARAMETER	971	0.418415
26	HAS_SIBLING	1004	0.432636
27	HAS_TEXT	1016	0.437806

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	[Commit, Git, Log]	CONTAINS_CHANGED	[File, Git, Log]	45786	7618	
1	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	18177	10537	
2	[Author, Git, Log]	AUTHORED	[Commit, Git, Log]	7618	260	
3	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	7303	10537	
4	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	6939	10537	
5	[Commit, Git, Log]	HAS_PARENT	[Commit, Git, Log]	6156	7618	
6	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	5720	11184	
7	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3213	6308	
8	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	2777	6537	
9	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2722	6537	
10	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2434	11184	
11	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2228	6537	
12	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	1971	1646	
13	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	1889	10537	
14	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	1842	2225	
15	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	1818	11184	
16	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1742	1646	
17	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1724	10537	
18	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	1710	1646	
19	[Java, ByteCode, Parameter]	ANNOTATED_BY	[Java, Value, ByteCode, Annotation]	1594	11184	
20	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1534	767	
21	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1531	1646	
22	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1527	6537	
23	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	1522	1534	
24	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1464	10537	
25	[Type, File, Java, ByteCode, JavaType]	DECLARES	[Java, ByteCode, Member, Method]	1277	596	
26	[Java, ByteCode, GenericDeclaration, Member, M...	INVOKES	[Java, ByteCode, Member, Method]	1273	510	
27	[Java, ByteCode, Member, Constructor, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1221	1646	

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
28	[Java, ByteCode, Member, Field]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	1170		2846
29	[Java, ByteCode, Member, Method]	RETURNS_GENERIC	[Java, ByteCode, Bound, ParameterizedType]	1159		10537

Graph Density

total_number_of_nodes (vertices): 68812

total_number_of_relationships (edges): 232066

-> total directed graph density: 4.9010537633488076e-05

-> total directed graph density in percent: 0.004901053763348808