

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`.

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	259908	74.376306
1	[Java, ByteCode, Member, Method]	13197	3.776506
2	[Java, ByteCode, Parameter]	13029	3.728430
3	[Git, Commit]	12722	3.640578
4	[File, Git]	10810	3.093433
5	[Java, ByteCode, Bound, ParameterizedType]	7176	2.053513
6	[Java, ByteCode, Bound]	7118	2.036915
7	[Java, ByteCode, Member, Field]	3502	1.002146
8	[Java, ByteCode, Bound, WildcardType]	2908	0.832165
9	[Java, Value, ByteCode, Annotation]	2822	0.807555
10	[Xml, Element]	2144	0.613536
11	[Java, ByteCode, Member, Method, Constructor]	2039	0.583488
12	[Xml, Text]	1436	0.410931
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.313636
14	[Java, ByteCode, Member, Method, Lambda]	942	0.269566
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	877	0.250966
16	[Type, File, Java, ByteCode, Class]	810	0.231793
17	[Java, Value, ByteCode, Primitive]	652	0.186579
18	[Type, File, Java, ByteCode, JavaType]	644	0.184290
19	[Java, ByteCode, Member, Method, GenericDeclar...	569	0.162827
20	[Json, Key]	568	0.162541
21	[Value, Json, Scalar]	551	0.157676
22	[Type, File, Java, ByteCode, ExternalType]	380	0.108742
23	[Author, Git, Person]	298	0.085277
24	[Value, Array]	267	0.076406
25	[Committer, Git, Person]	252	0.072113
26	[Type, File, Java, ByteCode, GenericDeclaratio...	236	0.067535
27	[Value, Property]	202	0.057805
28	[Type, File, Java, ByteCode, Interface]	188	0.053799
29	[Java, Value, ByteCode, Class]	172	0.049220

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)

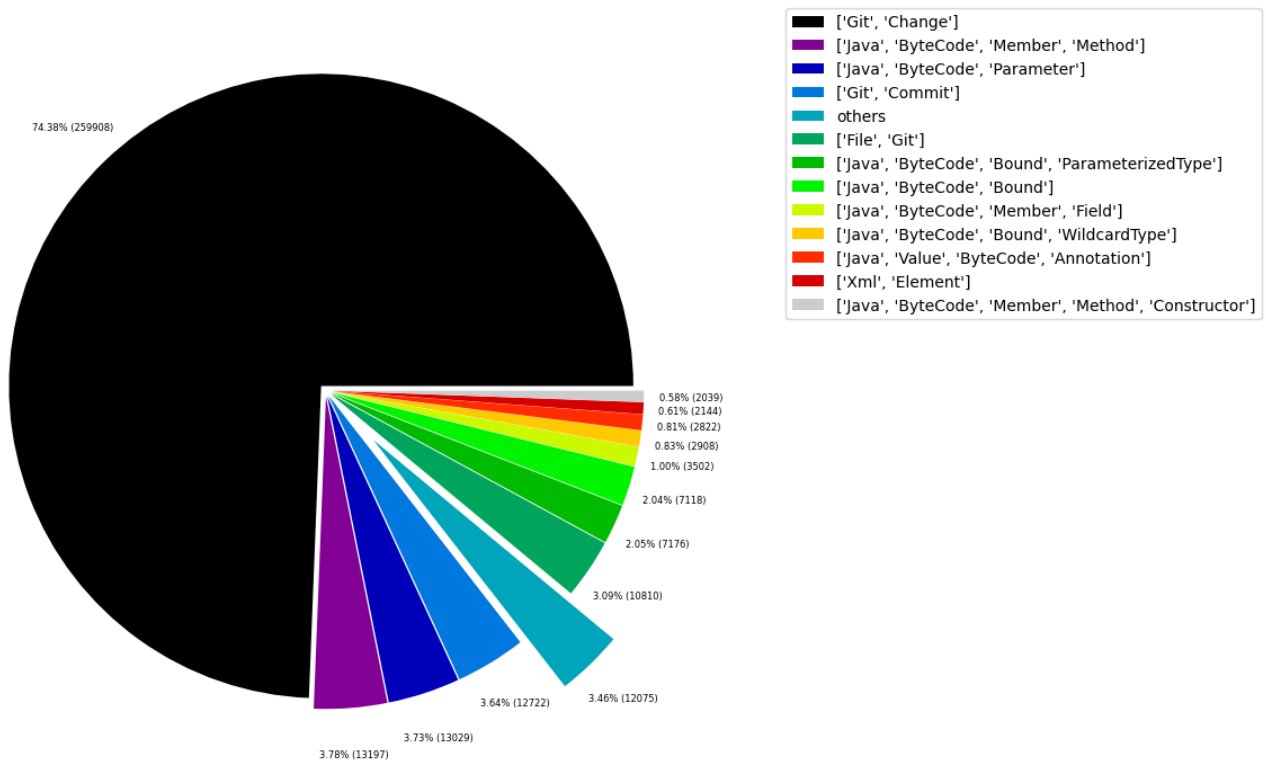


Table 1b - Lowest node count by label combination

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	0.000286
1	[Package, File, Json, NPM]	1	0.000286
2	[Repository, File, Git]	1	0.000286
3	[File, TS, Scan]	1	0.000286
4	[File, Json]	2	0.000572
5	[File]	3	0.000858
6	[Java, ByteCode, Member, Method, GenericDeclar...	4	0.001145
7	[Maven, Exclusion]	5	0.001431
8	[Value, Array, Json]	6	0.001717
9	[Dependency, NPM]	7	0.002003
10	[Type, File, Java, ByteCode, Void]	9	0.002575
11	[File, Maven, Xml, Pom, Document]	9	0.002575
12	[Java, ManifestSection]	9	0.002575
13	[File, Java, Manifest]	9	0.002575
14	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002575
15	[File, Java, ServiceLoader]	10	0.002862
16	[File, Java, Properties]	12	0.003434
17	[Maven, PluginExecution]	16	0.004579
18	[Maven, ExecutionGoal]	16	0.004579
19	[Type, File, Java, ByteCode, Throwable, Extern...	16	0.004579
20	[Xml, Attribute]	18	0.005151
21	[jQAssistant, Rule, Concept]	19	0.005437
22	[Maven, Configuration]	21	0.006009
23	[Maven, Plugin]	21	0.006009
24	[Type, File, Java, ByteCode, Throwable, Resolv...	22	0.006296
25	[Type, File, Java, ByteCode, Enum]	28	0.008013
26	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008299
27	[Xml, Namespace]	36	0.010302
28	[Git, Branch]	42	0.012019
29	[Type, File, Java, ByteCode, Annotation]	43	0.012305

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>

Nodes per label combination (less than 0.5% overall)

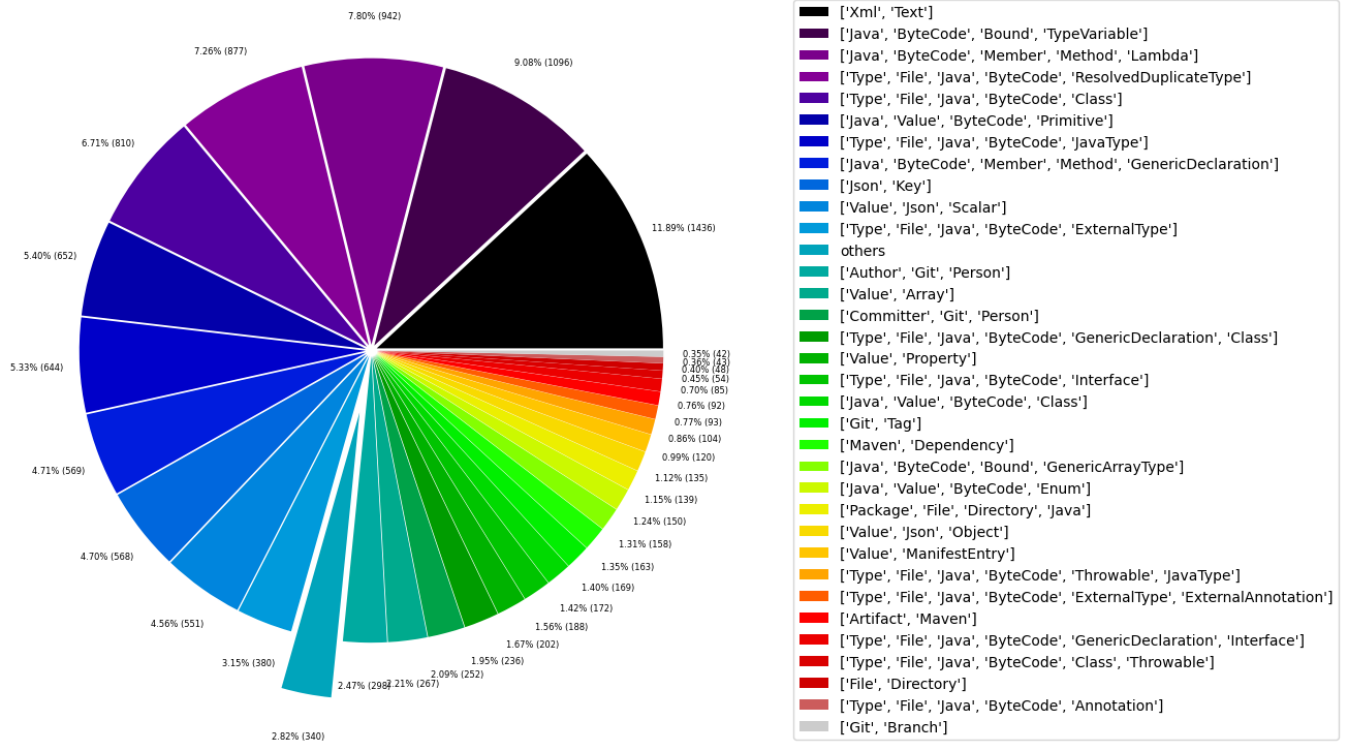


Table 1c - Highest node count by single label

Lists the 40 labels with the highest number of nodes. Doesn't sum up to the total number of nodes or 100% because one node can have multiple labels. Helps to identify commonly used labels.

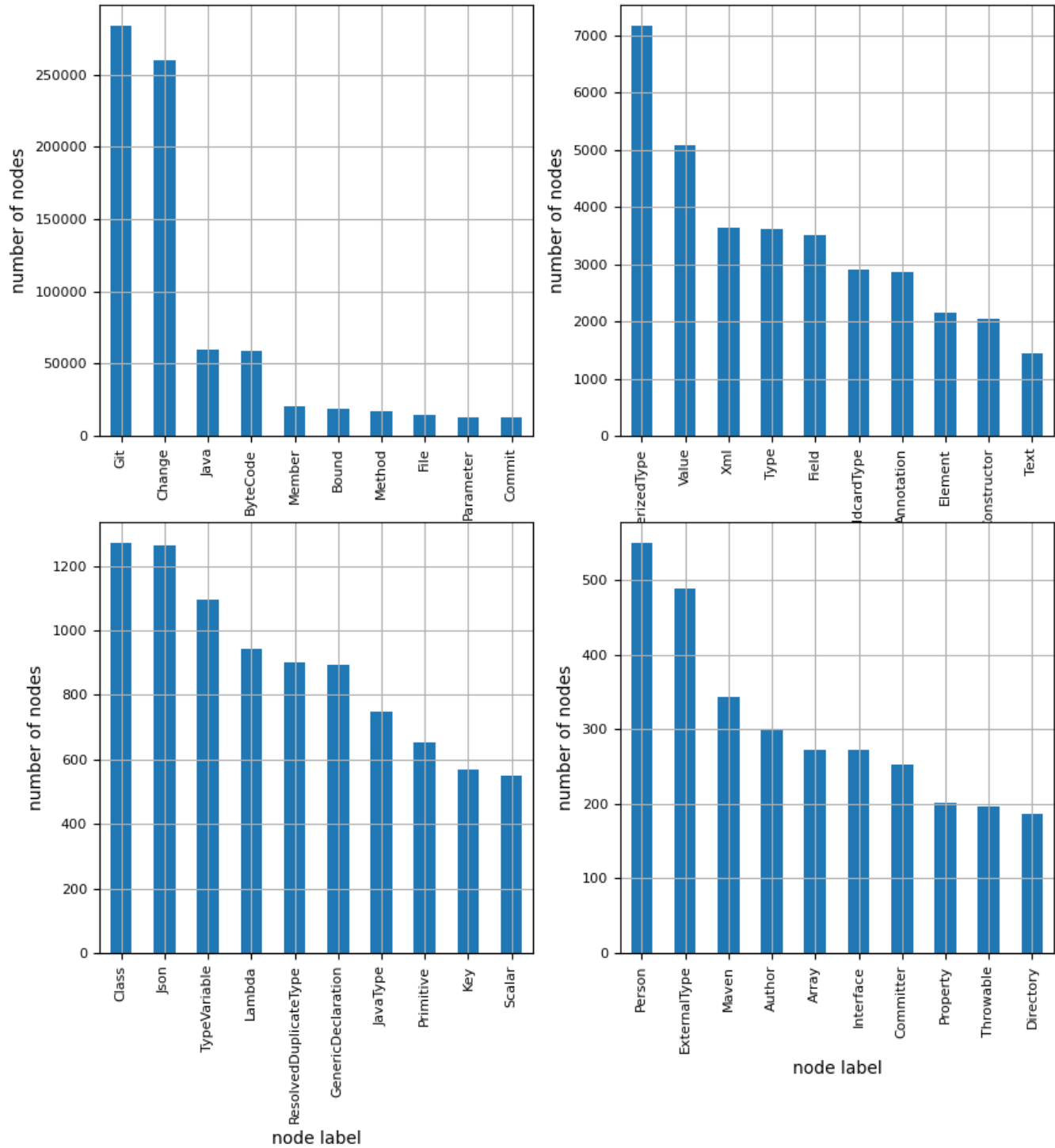
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	284202	81.328373
1	Change	259908	74.376306
2	Java	59340	16.980970
3	ByteCode	59152	16.927171
4	Member	20253	5.795679
5	Bound	18456	5.281442
6	Method	16751	4.793533
7	File	14672	4.198598
8	Parameter	13029	3.728430
9	Commit	12722	3.640578
10	ParameterizedType	7176	2.053513
11	Value	5077	1.452854
12	Xml	3643	1.042495
13	Type	3618	1.035341
14	Field	3502	1.002146
15	WildcardType	2908	0.832165
16	Annotation	2865	0.819860
17	Element	2144	0.613536
18	Constructor	2043	0.584633
19	Text	1436	0.410931
20	Class	1272	0.364001
21	Json	1263	0.361425
22	TypeVariable	1096	0.313636
23	Lambda	942	0.269566
24	ResolvedDuplicateType	899	0.257261
25	GenericDeclaration	894	0.255831
26	JavaType	748	0.214051
27	Primitive	652	0.186579
28	Key	568	0.162541
29	Scalar	551	0.157676
30	Person	550	0.157390
31	ExternalType	489	0.139934
32	Maven	343	0.098154
33	Author	298	0.085277
34	Array	273	0.078123
35	Interface	273	0.078123
36	Committer	252	0.072113
37	Property	202	0.057805
38	Throwable	196	0.056088
39	Directory	187	0.053513

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: 1085153

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	259908	23.951277
1	MODIFIES	259908	23.951277
2	UPDATES	171251	15.781277
3	CREATES	61217	5.641324
4	DELETES	37993	3.501165
5	INVOKES	35947	3.312620
6	COMMITTED	25444	2.344738
7	DEPENDS_ON	21931	2.021005
8	OF_TYPE	21394	1.971519
9	DECLARES	20698	1.907381
10	OF_RAW_TYPE	17093	1.575170
11	HAS_PARENT	15406	1.419708
12	HAS	14125	1.301660
13	HAS_COMMIT	12722	1.172369
14	RETURNS	12578	1.159099
15	HAS_FILE	10810	0.996173
16	RENAMES	10553	0.972490
17	READS	9161	0.844213
18	HAS_ACTUAL_TYPE_ARGUMENT	8288	0.763763
19	HAS_NEW_NAME	6237	0.574758
20	OF_GENERIC_TYPE	5906	0.544255
21	RESOLVES_TO	5216	0.480670
22	SIMILAR	3977	0.366492
23	CONTAINS	3824	0.352393
24	WRITES	3818	0.351840
25	RETURNS_GENERIC	3545	0.326682
26	ANNOTATED_BY	2810	0.258950
27	REQUIRES	2174	0.200340
28	HAS_FIRST_CHILD	2144	0.197576
29	HAS_LAST_CHILD	2144	0.197576

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>

Relationship types (more than 0.5% overall)

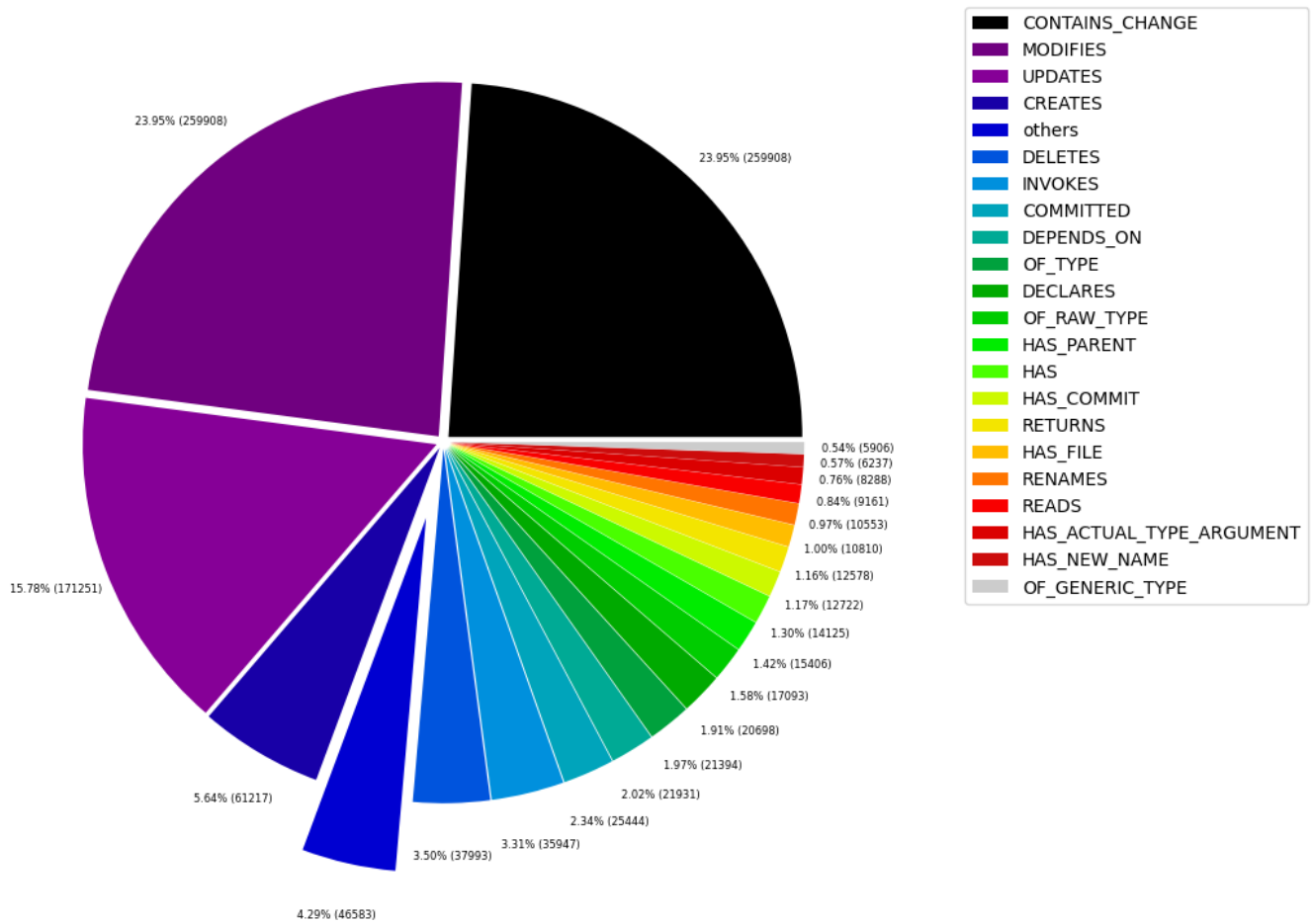


Table 2b - Lowest relationship count by type

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.

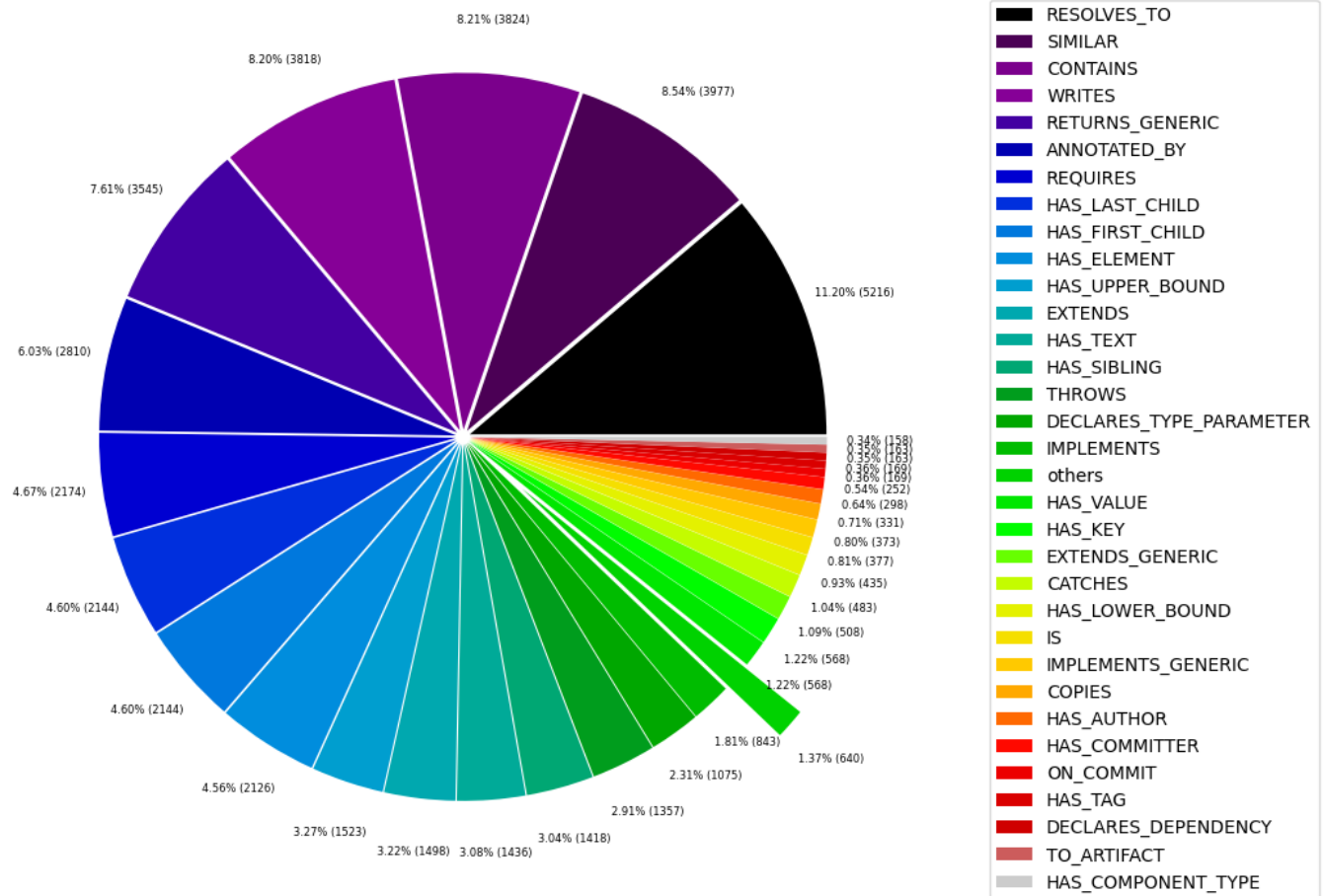
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000092
1	THROWS_GENERIC	5	0.000461
2	EXCLUDES	5	0.000461
3	DECLARES_DEV_DEPENDENCY	7	0.000645
4	DESCRIBES	9	0.000829
5	HAS_ROOT_ELEMENT	10	0.000922
6	HAS_GOAL	16	0.001474
7	HAS_EXECUTION	16	0.001474
8	OF_NAMESPACE	18	0.001659
9	HAS_ATTRIBUTE	18	0.001659
10	INCLUDES_CONCEPT	19	0.001751
11	REQUIRES_TYPE_PARAMETER	21	0.001935
12	IS_ARTIFACT	21	0.001935
13	HAS_CONFIGURATION	21	0.001935
14	USES_PLUGIN	21	0.001935
15	REQUIRES_CONCEPT	28	0.002580
16	HAS_DEFAULT	36	0.003318
17	DECLARES_NAMESPACE	36	0.003318
18	HAS_BRANCH	42	0.003870
19	HAS_HEAD	43	0.003963
20	CONTAINS_VALUE	121	0.011151
21	COPY_OF	126	0.011611
22	HAS_COMPONENT_TYPE	158	0.014560
23	TO_ARTIFACT	163	0.015021
24	DECLARES_DEPENDENCY	163	0.015021
25	ON_COMMIT	169	0.015574
26	HAS_TAG	169	0.015574
27	HAS_COMMITTER	252	0.023223
28	HAS_AUTHOR	298	0.027462
29	COPIES	331	0.030503

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>

Relationship types (less than 0.5% overall)



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, Change]	MODIFIES	[File, Git]	259908	259908	
1	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	259908	12722	
2	[Git, Change]	UPDATES	[File, Git]	171251	259908	
3	[Git, Change]	CREATES	[File, Git]	61217	259908	
4	[Git, Change]	DELETES	[File, Git]	37993	259908	
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21999	13102	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	15397	12722	
7	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	12722	1	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	12722	252	
9	[Author, Git, Person]	COMMITTED	[Git, Commit]	12722	298	
10	[Repository, File, Git]	HAS_FILE	[File, Git]	10810	1	
11	[Git, Change]	RENAMES	[File, Git]	10553	259908	
12	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8363	13102	
13	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8221	13102	
14	[File, Git]	HAS_NEW_NAME	[File, Git]	6237	10810	
15	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6079	13029	
16	[Type, File, Java, ByteCode, Class]	DECLARES	[Java, ByteCode, Member, Method]	5083	770	
17	[Type, File, Java, ByteCode, Class]	DEPENDS_ON	[Type, File, Java, ByteCode, JavaType]	4016	770	
18	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3427	7118	
19	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3053	7176	
20	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2908	7176	
21	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2657	13029	
22	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2454	7176	
23	[Java, ByteCode, Member, Method, Constructor]	WRITES	[Java, ByteCode, Member, Field]	2438	2039	
24	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalType, Ext...	2341	2822	
25	[Type, File, Java, ByteCode, Class]	DECLARES	[Java, ByteCode, Member, Field]	2141	770	
26	[Type, File, Java, ByteCode, GenericDeclaratio...	DECLARES	[Java, ByteCode, Member, Method]	2137	230	
27	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126	2144	
28	[Java, ByteCode, Member, Method, Constructor]	INVOKES	[Java, ByteCode, Member, Method, Constructor]	2119	2039	
29	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2080	13102	

Graph Density

```
total_number_of_nodes (vertices): 349450
total_number_of_relationships (edges): 1085153
-> total directed graph density: 8.886323688432192e-06
-> total directed graph density in percent: 0.0008886323688432192
```