

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: 321624

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	233505	72.601858
1	[Java, ByteCode, Member, Method]	13228	4.112877
2	[Java, ByteCode, Parameter]	12968	4.032037
3	[Git, Commit]	11733	3.648049
4	[File, Git]	10590	3.292665
5	[Java, ByteCode, ParameterizedType, Bound]	7154	2.224336
6	[Java, ByteCode, Bound]	7094	2.205681
7	[Java, ByteCode, Member, Field]	3485	1.083563
8	[Java, ByteCode, Bound, WildcardType]	2902	0.902296
9	[Java, Value, ByteCode, Annotation]	2813	0.874624
10	[Xml, Element]	2144	0.666617
11	[Java, ByteCode, Member, Constructor, Method]	2045	0.635836
12	[Xml, Text]	1436	0.446484
13	[Java, ByteCode, Bound, TypeVariable]	1094	0.340149
14	[Java, ByteCode, Member, Method, Lambda]	931	0.289468
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	899	0.279519
16	[Type, File, Java, ByteCode, Class]	858	0.266771
17	[Type, File, Java, ByteCode, JavaType]	746	0.231948
18	[Java, Value, ByteCode, Primitive]	647	0.201167
19	[Java, ByteCode, Member, Method, GenericDeclar...	567	0.176293
20	[Json, Key]	555	0.172562
21	[Value, Json, Scalar]	539	0.167587
22	[Type, File, Java, ByteCode, ExternalType]	396	0.123125
23	[Author, Git, Person]	289	0.089856
24	[Value, Array]	267	0.083016
25	[Committer, Git, Person]	243	0.075554
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.073378
27	[Value, Property]	202	0.062806
28	[Type, File, Java, ByteCode, Interface]	186	0.057832
29	[Java, Value, ByteCode, Class]	170	0.052857

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.

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Nodes per label combination (more than 0.5% overall)

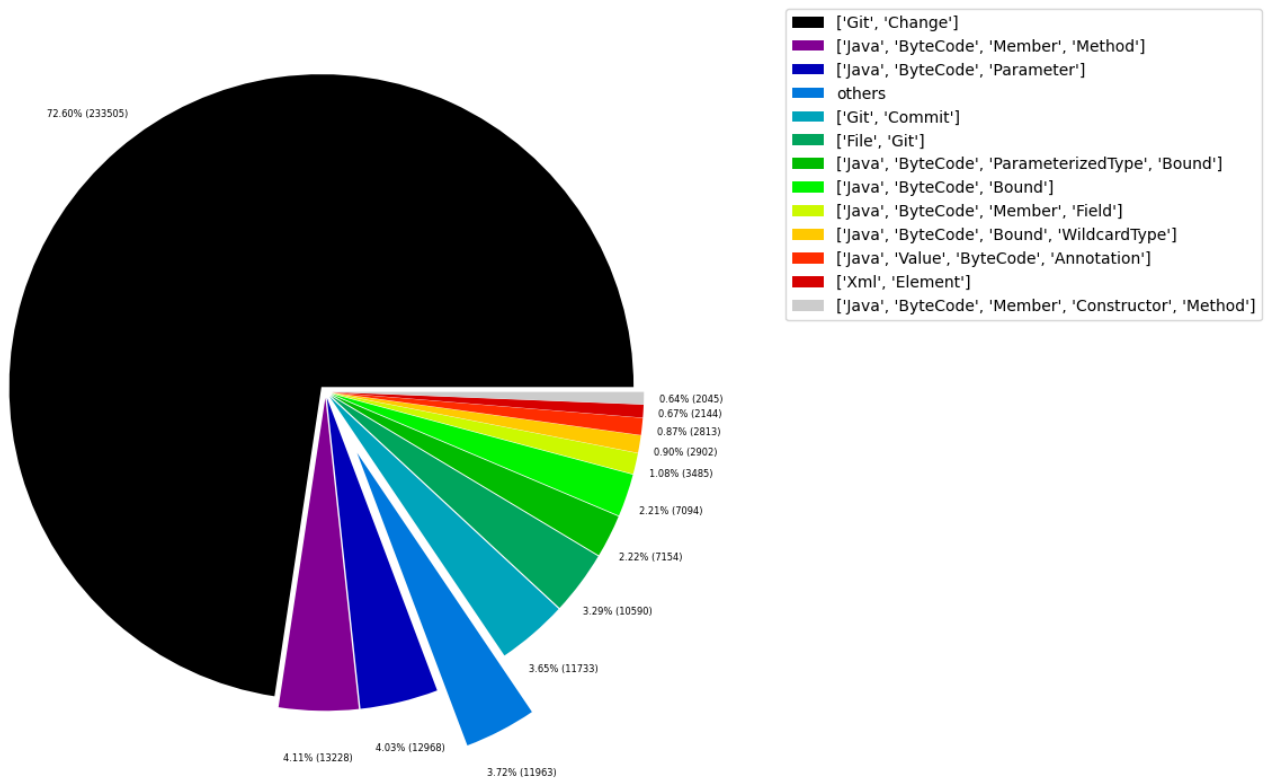


Table 1b - Lowest node count by label combination

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	0.000311
1	[File, TS, Scan]	1	0.000311
2	[File, Json]	2	0.000622
3	[File]	3	0.000933
4	[Java, ByteCode, Member, Constructor, Method, ...]	4	0.001244
5	[Maven, Exclusion]	5	0.001555
6	[Value, Json, Array]	6	0.001866
7	[File, Maven, Xml, Pom, Document]	9	0.002798
8	[Type, File, Java, ByteCode, Void]	9	0.002798
9	[Java, ManifestSection]	9	0.002798
10	[File, Java, Manifest]	9	0.002798
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002798
12	[File, Java, ServiceLoader]	10	0.003109
13	[File, Java, Properties]	12	0.003731
14	[Maven, ExecutionGoal]	16	0.004975
15	[Maven, PluginExecution]	16	0.004975
16	[Xml, Attribute]	18	0.005597
17	[jQAssistant, Rule, Concept]	19	0.005908
18	[Maven, Plugin]	21	0.006529
19	[Maven, Configuration]	21	0.006529
20	[Git, Branch]	25	0.007773
21	[Type, File, Java, ByteCode, Enum]	28	0.008706
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.009017
23	[Xml, Namespace]	36	0.011193
24	[Type, File, Java, ByteCode, Annotation]	43	0.013370
25	[File, Directory]	44	0.013681
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.026428
27	[Artifact, Maven]	92	0.028605
28	[Type, File, Java, ByteCode, ExternalAnnotatio...	93	0.028916
29	[Value, ManifestEntry]	120	0.037311

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.

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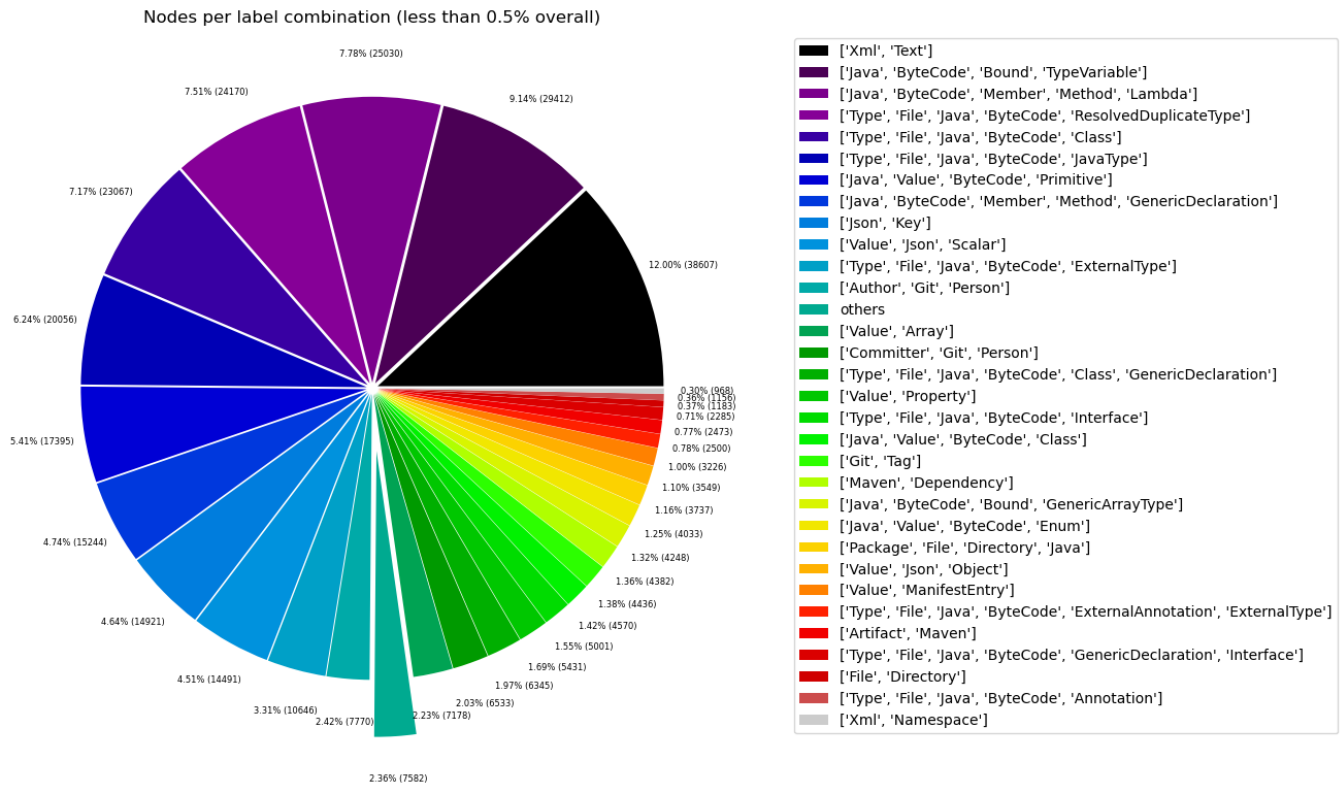


Table 1c - Highest node count by single label

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.

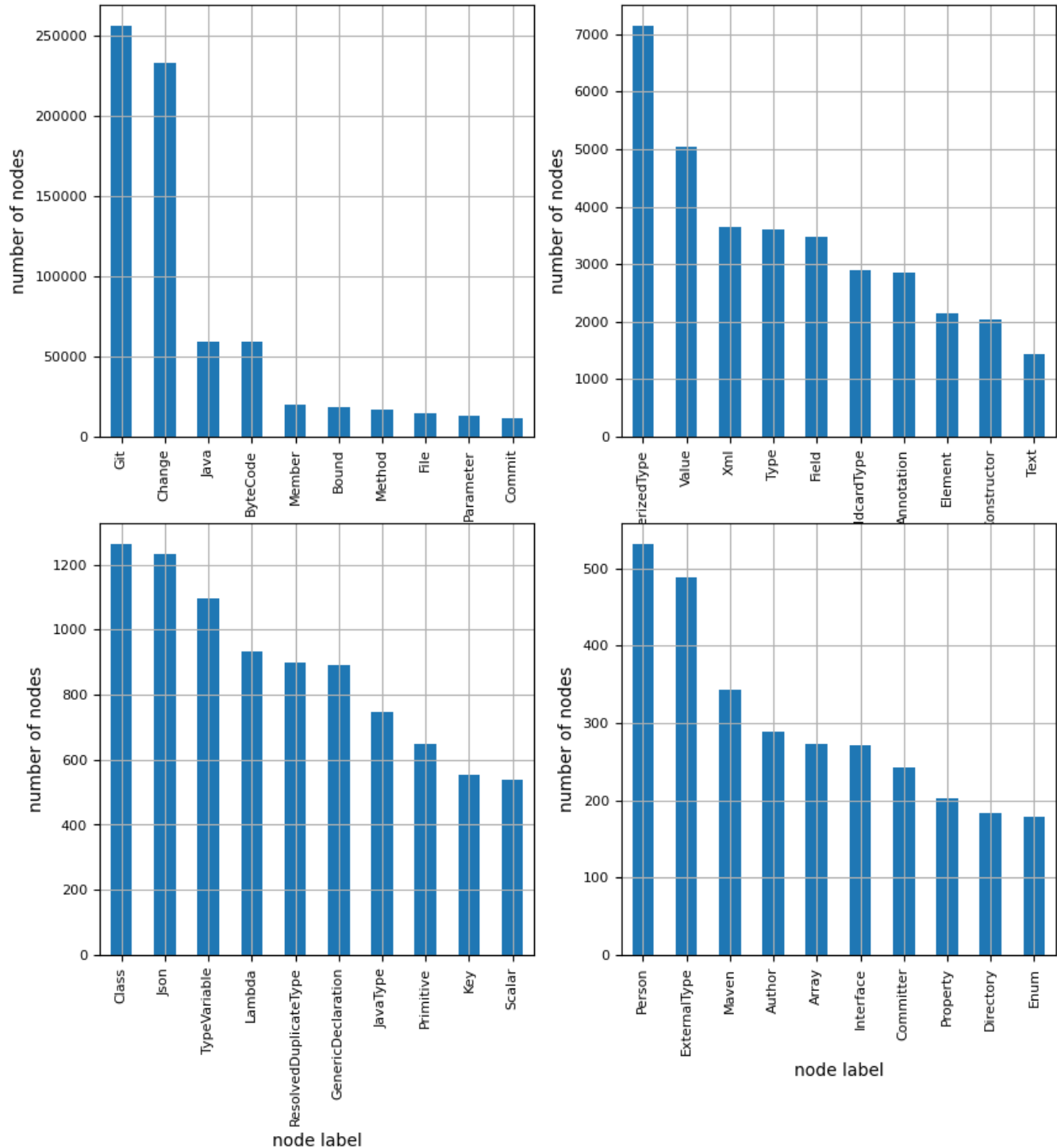
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	256550	79.767057
1	Change	233505	72.601858
2	Java	59206	18.408452
3	ByteCode	59018	18.349999
4	Member	20260	6.299281
5	Bound	18402	5.721588
6	Method	16775	5.215718
7	File	14436	4.488471
8	Parameter	12968	4.032037
9	Commit	11733	3.648049
10	ParameterizedType	7154	2.224336
11	Value	5046	1.568913
12	Xml	3643	1.132689
13	Type	3608	1.121807
14	Field	3485	1.083563
15	WildcardType	2902	0.902296
16	Annotation	2856	0.887993
17	Element	2144	0.666617
18	Constructor	2049	0.637079
19	Text	1436	0.446484
20	Class	1264	0.393005
21	Json	1234	0.383678
22	TypeVariable	1094	0.340149
23	Lambda	931	0.289468
24	ResolvedDuplicateType	899	0.279519
25	GenericDeclaration	892	0.277342
26	JavaType	746	0.231948
27	Primitive	647	0.201167
28	Key	555	0.172562
29	Scalar	539	0.167587
30	Person	532	0.165411
31	ExternalType	489	0.152041
32	Maven	343	0.106646
33	Author	289	0.089856
34	Array	273	0.084882
35	Interface	271	0.084260
36	Committer	243	0.075554
37	Property	202	0.062806
38	Directory	183	0.056899
39	Enum	178	0.055344

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: 975006

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	233505	23.949083
1	MODIFIES	233505	23.949083
2	UPDATES	149845	15.368623
3	CREATES	57905	5.938938
4	DELETES	35670	3.658439
5	INVOKES	35600	3.651260
6	COMMITTED	23466	2.406754
7	DEPENDS_ON	21820	2.237935
8	OF_TYPE	21292	2.183781
9	DECLARES	20699	2.122961
10	OF_RAW_TYPE	17041	1.747784
11	HAS_PARENT	14261	1.462658
12	HAS	14057	1.441735
13	RETURNS	12524	1.284505
14	RENAMES	9915	1.016917
15	READS	9069	0.930148
16	HAS_ACTUAL_TYPE_ARGUMENT	8261	0.847277
17	HAS_NEW_NAME	6164	0.632201
18	OF_GENERIC_TYPE	5892	0.604304
19	RESOLVES_TO	5263	0.539792
20	SIMILAR	3955	0.405639
21	CONTAINS	3797	0.389434
22	WRITES	3796	0.389331
23	RETURNS_GENERIC	3538	0.362870
24	ANNOTATED_BY	2801	0.287280
25	REQUIRES	2172	0.222768
26	HAS_FIRST_CHILD	2144	0.219896
27	HAS_LAST_CHILD	2144	0.219896
28	HAS_ELEMENT	2126	0.218050
29	HAS_UPPER_BOUND	1519	0.155794

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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Relationship types (more than 0.5% overall)

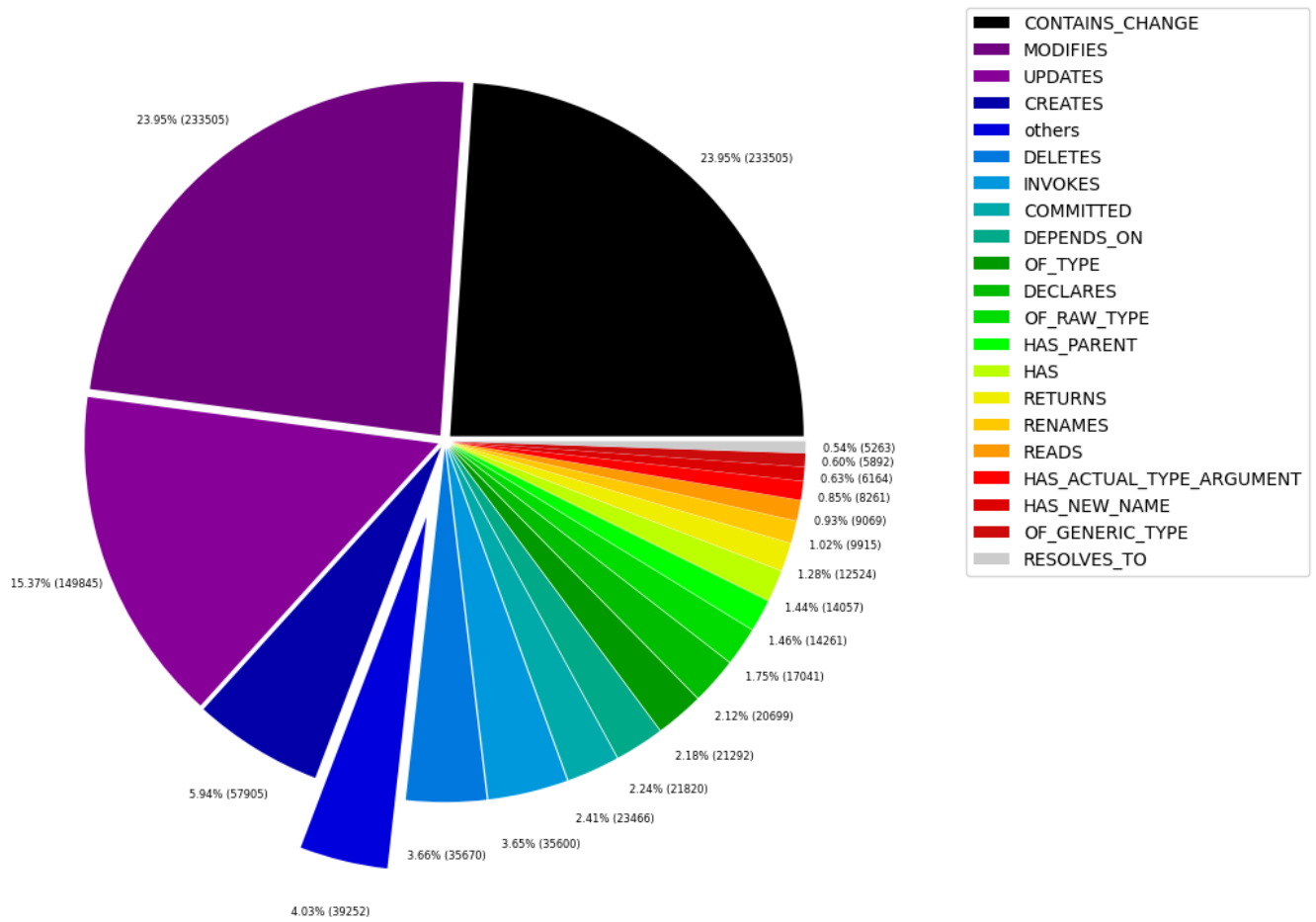


Table 2b - Lowest relationship count by type

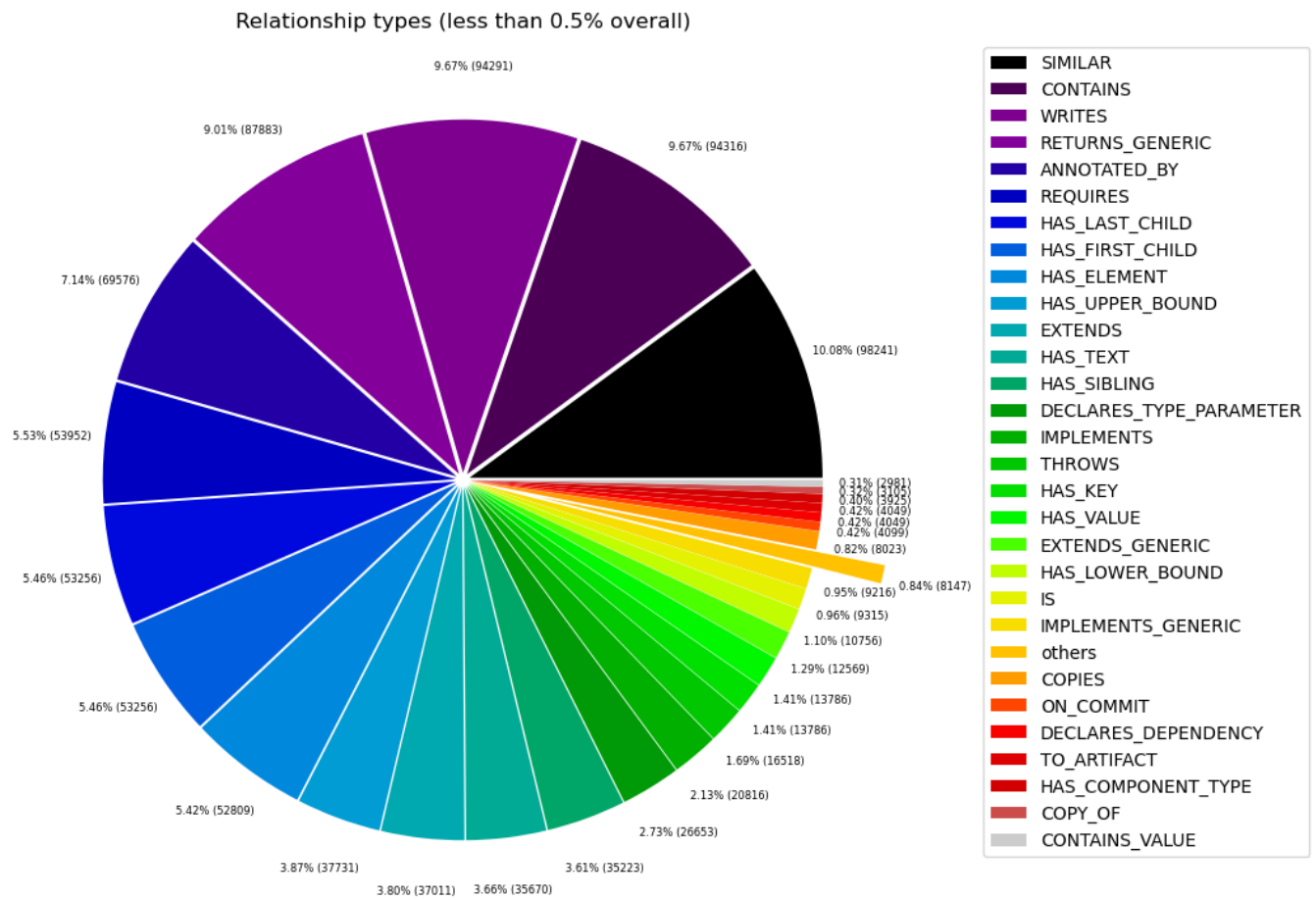
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000103
1	THROWS_GENERIC	5	0.000513
2	EXCLUDES	5	0.000513
3	DESCRIBES	9	0.000923
4	HAS_ROOT_ELEMENT	12	0.001231
5	HAS_GOAL	16	0.001641
6	HAS_EXECUTION	16	0.001641
7	OF_NAMESPACE	18	0.001846
8	HAS_ATTRIBUTE	18	0.001846
9	INCLUDES_CONCEPT	19	0.001949
10	USES_PLUGIN	21	0.002154
11	REQUIRES_TYPE_PARAMETER	21	0.002154
12	IS_ARTIFACT	21	0.002154
13	HAS_CONFIGURATION	21	0.002154
14	HAS_HEAD	25	0.002564
15	REQUIRES_CONCEPT	28	0.002872
16	DECLARES_NAMESPACE	36	0.003692
17	HAS_DEFAULT	36	0.003692
18	CONTAINS_VALUE	120	0.012308
19	COPY_OF	125	0.012820
20	HAS_COMPONENT_TYPE	158	0.016205
21	TO_ARTIFACT	163	0.016718
22	DECLARES_DEPENDENCY	163	0.016718
23	ON_COMMIT	165	0.016923
24	COPIES	323	0.033128
25	IMPLEMENTS_GENERIC	371	0.038051
26	IS	375	0.038461
27	HAS_LOWER_BOUND	433	0.044410
28	EXTENDS_GENERIC	506	0.051897
29	HAS_VALUE	555	0.056923

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]	CONTAINS_CHANGE	[Git, Change]	233505	11733	
1	[Git, Change]	MODIFIES	[File, Git]	233505	233505	
2	[Git, Change]	UPDATES	[File, Git]	149845	233505	
3	[Git, Change]	CREATES	[File, Git]	57905	233505	
4	[Git, Change]	DELETES	[File, Git]	35670	233505	
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21652	13108	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14252	11733	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11733	289	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11733	243	
9	[Git, Change]	RENAMES	[File, Git]	9915	233505	
10	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8294	13108	
11	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8122	13108	
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6335	12968	
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6164	10590	
14	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3554	7094	
15	[Java, ByteCode, ParameterizedType, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3034	7154	
16	[Java, ByteCode, ParameterizedType, Bound]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2902	7154	
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, ParameterizedType, Bound]	2650	12968	
18	[Java, ByteCode, ParameterizedType, Bound]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2453	7154	
19	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	2423	2045	
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	2336	2813	
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126	2144	
22	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2107	2045	
23	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2084	13108	
24	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2037	13108	
25	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	2021	2045	
26	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2020	12968	
27	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1881	931	
28	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1798	2045	
29	[Java, ByteCode, ParameterizedType, Bound]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1792	7154	

Graph Density

```
total_number_of_nodes (vertices): 321624
total_number_of_relationships (edges): 975006
-> total directed graph density: 9.425659367096522e-06
-> total directed graph density in percent: 0.0009425659367096521
```