

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: 319102

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	231149	72.437340
1	[Java, ByteCode, Method, Member]	13196	4.135355
2	[Java, ByteCode, Parameter]	12968	4.063904
3	[Git, Commit]	11647	3.649930
4	[File, Git]	10563	3.310227
5	[Java, ByteCode, Bound, ParameterizedType]	7154	2.241916
6	[Java, ByteCode, Bound]	7094	2.223114
7	[Java, ByteCode, Member, Field]	3481	1.090874
8	[Java, ByteCode, Bound, WildcardType]	2902	0.909427
9	[Java, Value, ByteCode, Annotation]	2813	0.881536
10	[Xml, Element]	2144	0.671885
11	[Java, ByteCode, Constructor, Method, Member]	2031	0.636474
12	[Xml, Text]	1436	0.450013
13	[Java, ByteCode, Bound, TypeVariable]	1094	0.342837
14	[Java, ByteCode, Method, Member, Lambda]	931	0.291756
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	899	0.281728
16	[Type, File, Java, ByteCode, Class]	858	0.268880
17	[Type, File, Java, ByteCode, JavaType]	746	0.233781
18	[Java, Value, ByteCode, Primitive]	647	0.202756
19	[Java, ByteCode, Method, Member, GenericDeclar...	567	0.177686
20	[Json, Key]	555	0.173926
21	[Value, Json, Scalar]	539	0.168912
22	[Type, File, Java, ByteCode, ExternalType]	396	0.124098
23	[Author, Git, Person]	288	0.090253
24	[Value, Array]	267	0.083672
25	[Committer, Git, Person]	242	0.075838
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.073958
27	[Value, Property]	202	0.063303
28	[Type, File, Java, ByteCode, Interface]	186	0.058289
29	[Java, Value, ByteCode, Class]	170	0.053275

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)

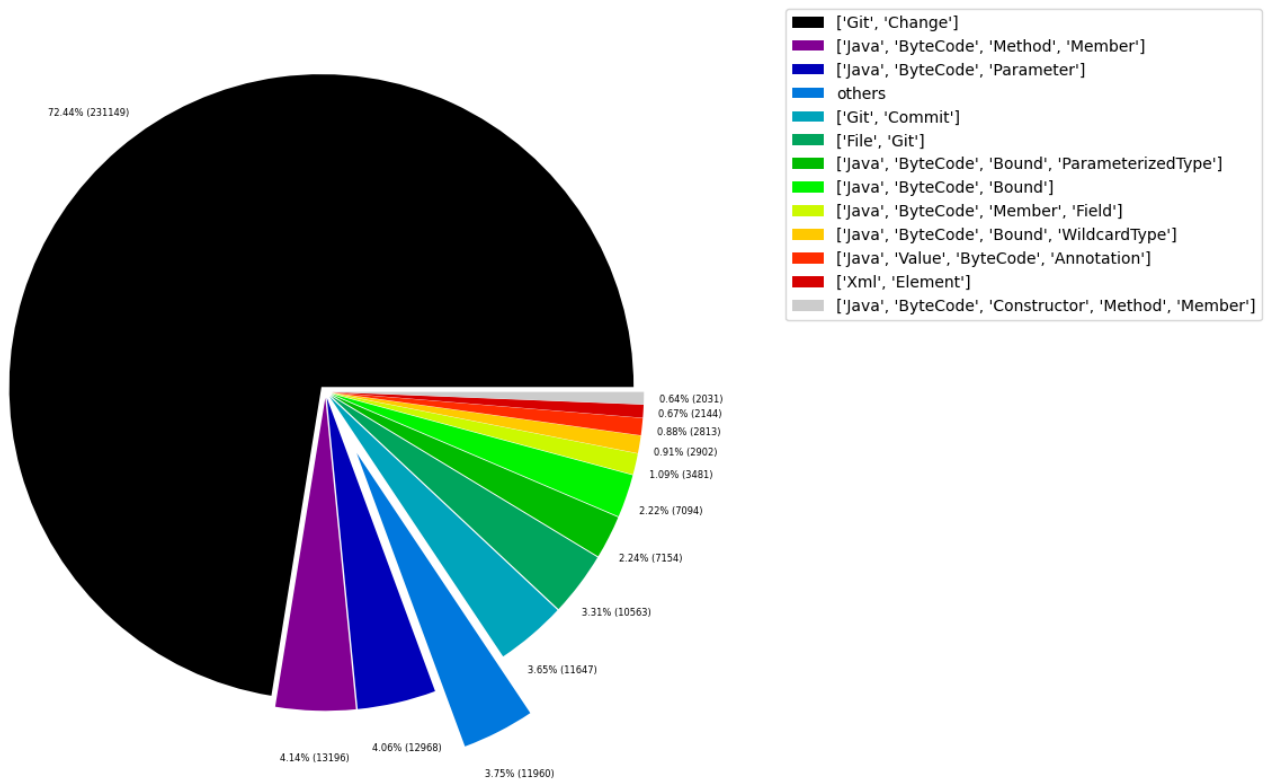


Table 1b - Lowest node count by label combination

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	0.000313
1	[File, TS, Scan]	1	0.000313
2	[File, Json]	2	0.000627
3	[File]	3	0.000940
4	[Java, ByteCode, Constructor, Method, Member, ...]	4	0.001254
5	[Maven, Exclusion]	5	0.001567
6	[Value, Array, Json]	6	0.001880
7	[File, Maven, Xml, Pom, Document]	9	0.002820
8	[Type, File, Java, ByteCode, Void]	9	0.002820
9	[Java, ManifestSection]	9	0.002820
10	[File, Java, Manifest]	9	0.002820
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002820
12	[File, Java, ServiceLoader]	10	0.003134
13	[File, Java, Properties]	12	0.003761
14	[Maven, ExecutionGoal]	16	0.005014
15	[Maven, PluginExecution]	16	0.005014
16	[Xml, Attribute]	18	0.005641
17	[jQAssistant, Rule, Concept]	19	0.005954
18	[Maven, Plugin]	21	0.006581
19	[Maven, Configuration]	21	0.006581
20	[Git, Branch]	24	0.007521
21	[Type, File, Java, ByteCode, Enum]	28	0.008775
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.009088
23	[Xml, Namespace]	36	0.011282
24	[Type, File, Java, ByteCode, Annotation]	43	0.013475
25	[File, Directory]	44	0.013789
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.026637
27	[Artifact, Maven]	92	0.028831
28	[Type, File, Java, ByteCode, ExternalType, Ext...	93	0.029144
29	[Value, ManifestEntry]	120	0.037606

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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Nodes per label combination (less than 0.5% overall)

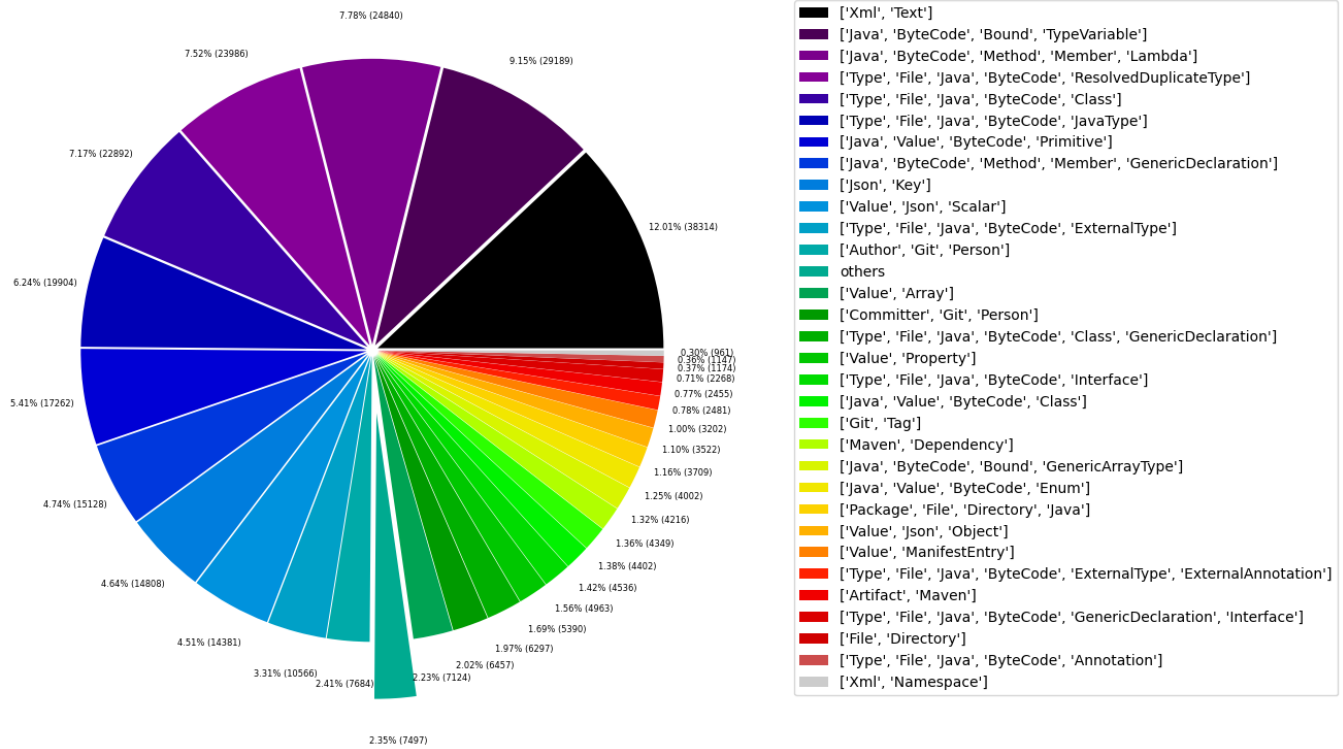


Table 1c - Highest node count by single label

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.

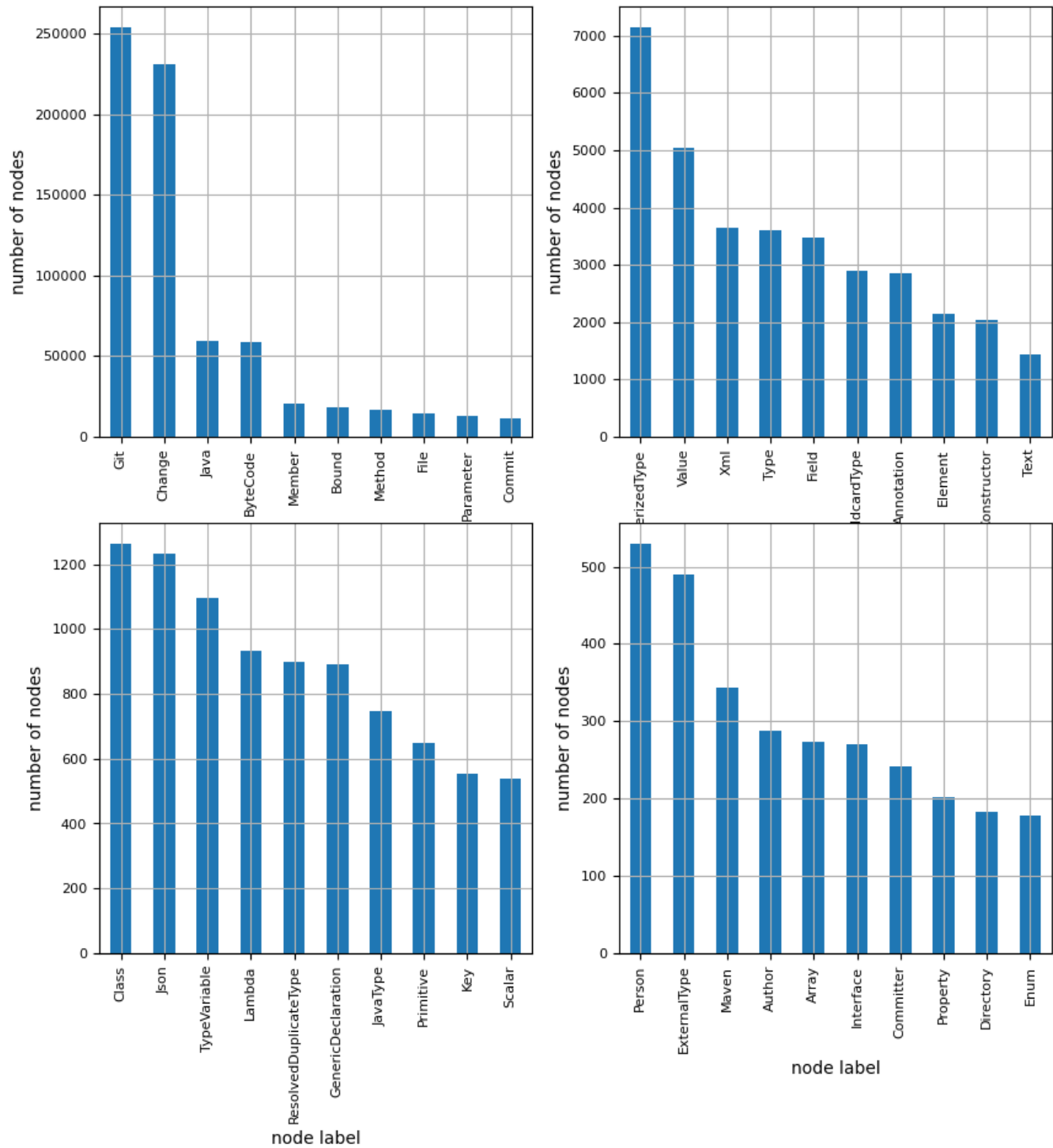
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	254078	79.622817
1	Change	231149	72.437340
2	Java	59156	18.538273
3	ByteCode	58968	18.479358
4	Member	20210	6.333398
5	Bound	18402	5.766808
6	Method	16729	5.242524
7	File	14409	4.515484
8	Parameter	12968	4.063904
9	Commit	11647	3.649930
10	ParameterizedType	7154	2.241916
11	Value	5046	1.581313
12	Xml	3643	1.141641
13	Type	3608	1.130673
14	Field	3481	1.090874
15	WildcardType	2902	0.909427
16	Annotation	2856	0.895012
17	Element	2144	0.671885
18	Constructor	2035	0.637727
19	Text	1436	0.450013
20	Class	1264	0.396112
21	Json	1234	0.386710
22	TypeVariable	1094	0.342837
23	Lambda	931	0.291756
24	ResolvedDuplicateType	899	0.281728
25	GenericDeclaration	892	0.279534
26	JavaType	746	0.233781
27	Primitive	647	0.202756
28	Key	555	0.173926
29	Scalar	539	0.168912
30	Person	530	0.166091
31	ExternalType	489	0.153243
32	Maven	343	0.107489
33	Author	288	0.090253
34	Array	273	0.085553
35	Interface	271	0.084926
36	Committer	242	0.075838
37	Property	202	0.063303
38	Directory	183	0.057348
39	Enum	178	0.055782

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: 967221

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	231149	23.898261
1	MODIFIES	231149	23.898261
2	UPDATES	148093	15.311185
3	CREATES	57573	5.952414
4	INVOKES	35758	3.696983
5	DELETES	35338	3.653560
6	COMMITTED	23294	2.408343
7	DEPENDS_ON	21459	2.218624
8	OF_TYPE	21292	2.201358
9	DECLARES	20649	2.134879
10	OF_RAW_TYPE	17041	1.761852
11	HAS_PARENT	14160	1.463988
12	HAS	14057	1.453339
13	RETURNS	12524	1.294844
14	RENAMES	9855	1.018898
15	READS	9068	0.937531
16	HAS_ACTUAL_TYPE_ARGUMENT	8261	0.854096
17	HAS_NEW_NAME	6159	0.636773
18	OF_GENERIC_TYPE	5892	0.609168
19	RESOLVES_TO	5241	0.541862
20	SIMILAR	3915	0.404768
21	CONTAINS	3797	0.392568
22	WRITES	3796	0.392465
23	RETURNS_GENERIC	3538	0.365790
24	ANNOTATED_BY	2801	0.289593
25	REQUIRES	2172	0.224561
26	HAS_FIRST_CHILD	2144	0.221666
27	HAS_LAST_CHILD	2144	0.221666
28	HAS_ELEMENT	2126	0.219805
29	HAS_UPPER_BOUND	1519	0.157048

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)

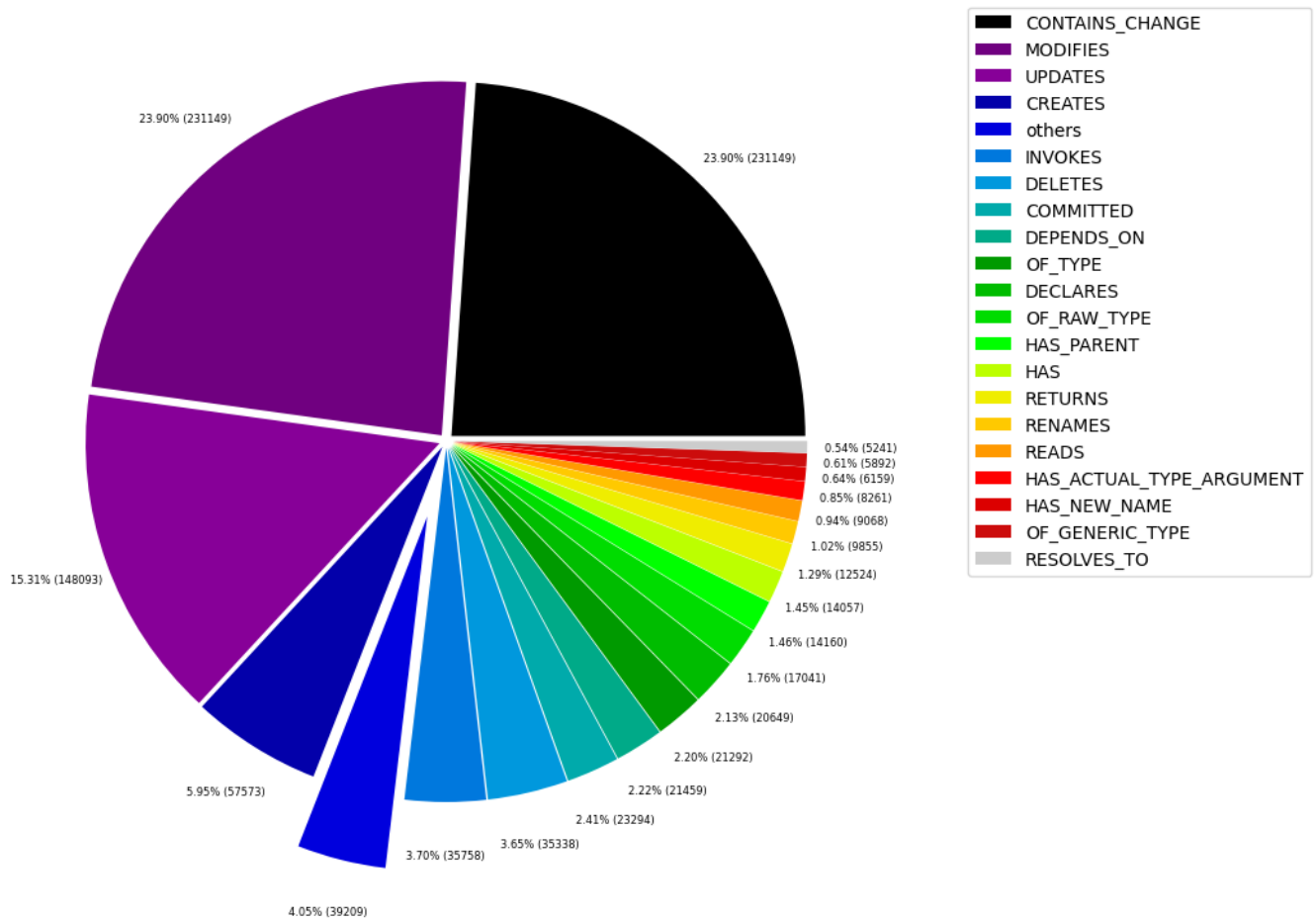


Table 2b - Lowest relationship count by type

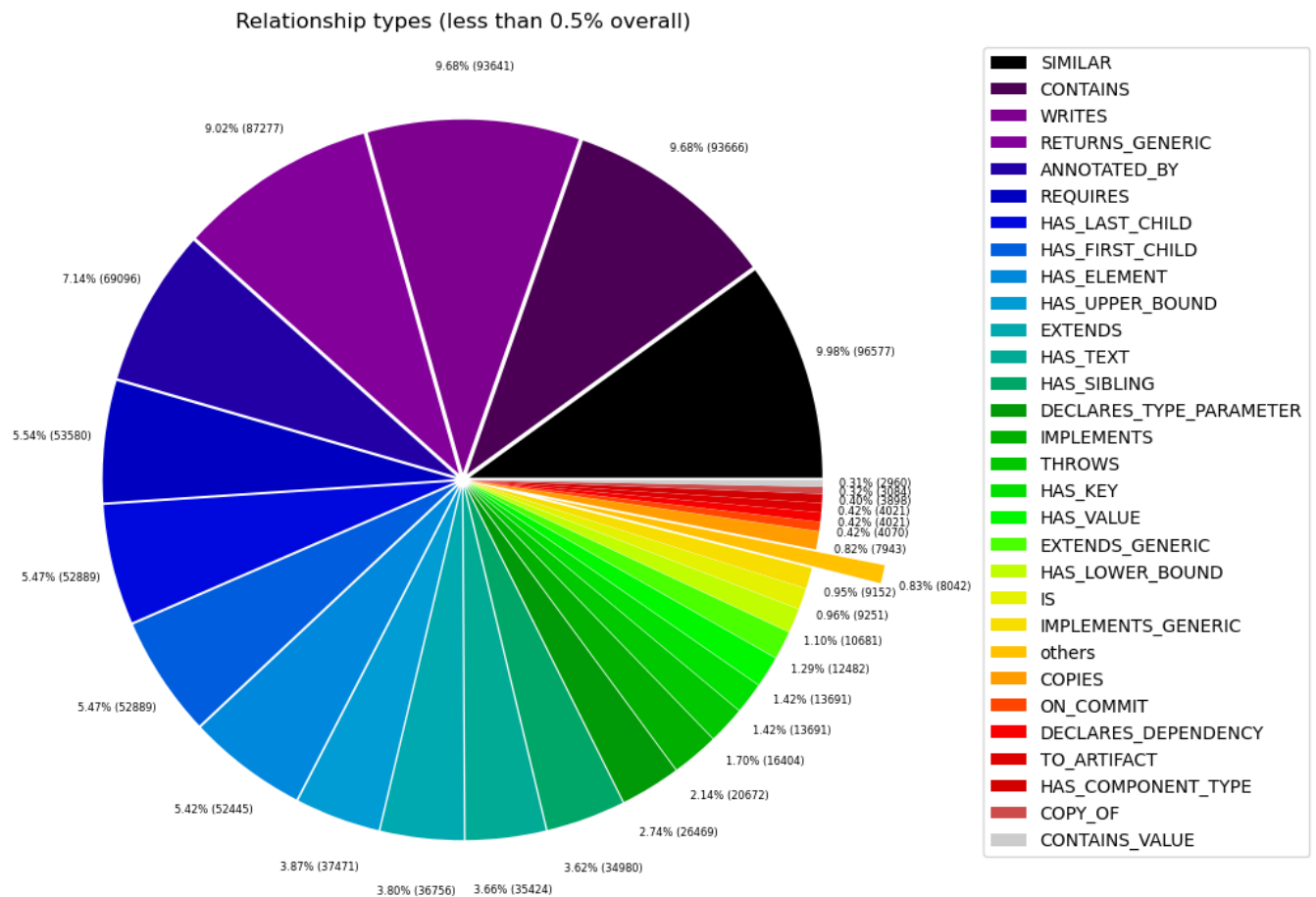
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000103
1	THROWS_GENERIC	5	0.000517
2	EXCLUDES	5	0.000517
3	DESCRIBES	9	0.000931
4	HAS_ROOT_ELEMENT	11	0.001137
5	HAS_GOAL	16	0.001654
6	HAS_EXECUTION	16	0.001654
7	OF_NAMESPACE	18	0.001861
8	HAS_ATTRIBUTE	18	0.001861
9	INCLUDES_CONCEPT	19	0.001964
10	USES_PLUGIN	21	0.002171
11	REQUIRES_TYPE_PARAMETER	21	0.002171
12	IS_ARTIFACT	21	0.002171
13	HAS_CONFIGURATION	21	0.002171
14	HAS_HEAD	24	0.002481
15	REQUIRES_CONCEPT	28	0.002895
16	DECLARES_NAMESPACE	36	0.003722
17	HAS_DEFAULT	36	0.003722
18	CONTAINS_VALUE	120	0.012407
19	COPY_OF	125	0.012924
20	HAS_COMPONENT_TYPE	158	0.016335
21	TO_ARTIFACT	163	0.016852
22	DECLARES_DEPENDENCY	163	0.016852
23	ON_COMMIT	165	0.017059
24	COPIES	322	0.033291
25	IMPLEMENTS_GENERIC	371	0.038357
26	IS	375	0.038771
27	HAS_LOWER_BOUND	433	0.044767
28	EXTENDS_GENERIC	506	0.052315
29	HAS_VALUE	555	0.057381

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]	231149	11647	
1	[Git, Change]	MODIFIES	[File, Git]	231149	231149	
2	[Git, Change]	UPDATES	[File, Git]	148093	231149	
3	[Git, Change]	CREATES	[File, Git]	57573	231149	
4	[Git, Change]	DELETES	[File, Git]	35338	231149	
5	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	21888	13080	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14151	11647	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11647	288	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11647	242	
9	[Git, Change]	RENAMES	[File, Git]	9855	231149	
10	[Java, ByteCode, Method, Member]	HAS	[Java, ByteCode, Parameter]	8290	13080	
11	[Java, ByteCode, Method, Member]	READS	[Java, ByteCode, Member, Field]	8125	13080	
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6336	12968	
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6159	10563	
14	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3554	7094	
15	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3034	7154	
16	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2902	7154	
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2650	12968	
18	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2453	7154	
19	[Java, ByteCode, Constructor, Method, Member]	WRITES	[Java, ByteCode, Member, Field]	2423	2031	
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalType, Ext...	2336	2813	
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126	2144	
22	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2100	2031	
23	[Java, ByteCode, Method, Member]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2088	13080	
24	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2034	13080	
25	[Java, ByteCode, Constructor, Method, Member]	HAS	[Java, ByteCode, Parameter]	2021	2031	
26	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2020	12968	
27	[Java, ByteCode, Method, Member, Lambda]	INVOKES	[Java, ByteCode, Method, Member]	1866	931	
28	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1792	7154	
29	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	1790	2031	

Graph Density

```
total_number_of_nodes (vertices): 319102
total_number_of_relationships (edges): 967221
-> total directed graph density: 9.498784302124305e-06
-> total directed graph density in percent: 0.0009498784302124305
```