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]	83712	78.382756
1	[Git, Commit]	10840	10.149908
2	[File, Git]	5591	5.235068
3	[Git, Tag]	1462	1.368927
4	[Author, Git, Person]	1238	1.159187
5	[Json, Key]	668	0.625474
6	[Json, Value, Scalar]	603	0.564612
7	[Committer, Git, Person]	370	0.346445
8	[NPM, Dependency]	338	0.316482
9	[Type, TS, Primitive]	291	0.272474
10	[Type, TS, Declared]	276	0.258429
11	[TS, ExternalDeclaration]	215	0.201313
12	[Type, TS, Literal]	136	0.127342
13	[Json, Value, Object]	133	0.124533
14	[Type, TS, Union]	119	0.111424
15	[Type, TS, ObjectMember]	101	0.094570
16	[NPM, Script]	91	0.085207
17	[TS, Property]	65	0.060862
18	[TS, Function]	47	0.044008
19	[Type, TS, FunctionParameter]	40	0.037454
20	[Git, Branch]	40	0.037454
21	[Type, Object, TS]	39	0.036517
22	[File, Directory]	34	0.031836
23	[Type, TS, Function]	34	0.031836
24	[TS, Parameter]	33	0.030899
25	[Package, File, Json, NPM]	29	0.027154
26	[TS, Variable]	24	0.022472
27	[Value, TS, Literal]	20	0.018727
28	[jQAssistant, Rule, Concept]	19	0.017790
29	[Type, TS, Intersection]	17	0.015918

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)

Legend:
- ['Git', 'Change']
- ['Git', 'Commit']
- ['File', 'Git']
- others
- ['Git', 'Tag']
- ['Author', 'Git', 'Person']
- ['Json', 'Key']
- ['Json', 'Value', 'Scalar']

78.38% (83712)
0.56% (603)
0.63% (668)
1.16% (1238)
1.37% (1462)
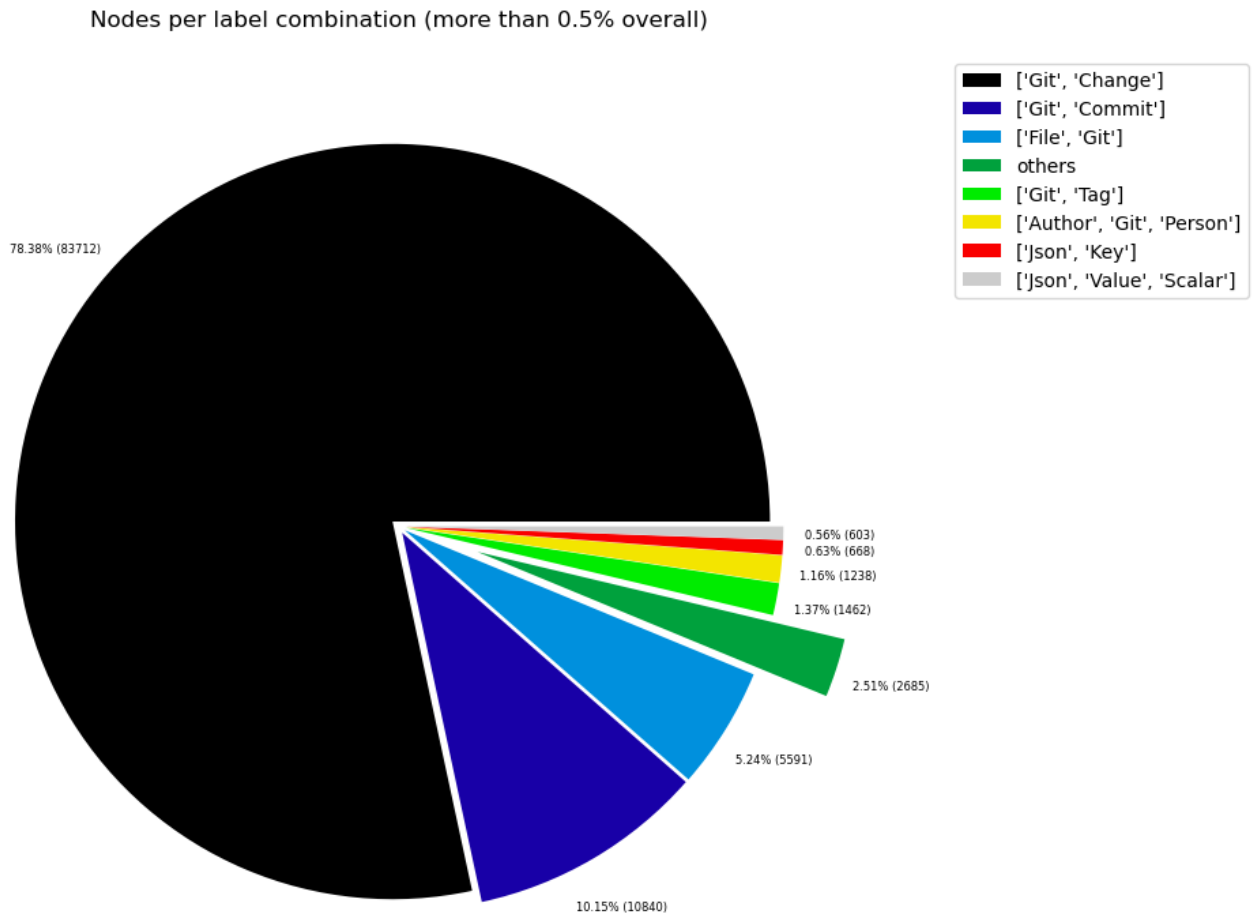2.51% (2685)
5.24% (5591)
10.15% (10840)

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	0.000936
1	[File, TS, Scan]	1	0.000936
2	[TS, Method]	1	0.000936
3	[Repository, File, Git]	1	0.000936
4	[TS, Constructor]	1	0.000936
5	[Value, TS, ObjectMember]	1	0.000936
6	[TS, Class]	1	0.000936
7	[TS, Enum]	2	0.001873
8	[Value, Object, TS]	3	0.002809
9	[Type, TS, Tuple]	3	0.002809
10	[Value, TS, Function]	4	0.003745
11	[TS, TypeParameter]	4	0.003745
12	[Value, TS, Complex]	5	0.004682
13	[NPM, Engine]	6	0.005618
14	[Project, TS]	6	0.005618
15	[File, Local]	6	0.005618
16	[Value, TS, Call]	6	0.005618
17	[Value, TS, Member]	6	0.005618
18	[File, TS, Local, Module]	6	0.005618
19	[Type, TS, TypeParameterReference]	6	0.005618
20	[TS, EnumMember]	8	0.007491
21	[Type, TS, NotIdentified]	11	0.010300
22	[TS, ExternalModule]	11	0.010300
23	[Json, Value, Array]	12	0.011236
24	[Value, TS, Declared]	13	0.012172
25	[TS, TypeAlias]	16	0.014981
26	[File, Directory, Local]	16	0.014981
27	[Type, TS, Intersection]	17	0.015918
28	[TS, Interface]	17	0.015918
29	[jQAssistant, Rule, Concept]	19	0.017790

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)

Legend:
- ['Committer', 'Git', 'Person']
- ['NPM', 'Dependency']
- ['Type', 'TS', 'Primitive']
- ['Type', 'TS', 'Declared']
- ['TS', 'ExternalDeclaration']
- ['Type', 'TS', 'Literal']
- ['Json', 'Value', 'Object']
- ['Type', 'TS', 'Union']
- ['Type', 'TS', 'ObjectMember']
- ['NPM', 'Script']
- others
- ['TS', 'Property']
- ['TS', 'Function']
- ['Git', 'Branch']
- ['Type', 'TS', 'FunctionParameter']
- ['Type', 'Object', 'TS']
- ['Type', 'TS', 'Function']
- ['File', 'Directory']
- ['TS', 'Parameter']
- ['Package', 'File', 'Json', 'NPM']
- ['TS', 'Variable']
- ['Value', 'TS', 'Literal']
- ['jQAssistant', 'Rule', 'Concept']
- ['Type', 'TS', 'Intersection']
- ['TS', 'Interface']
- ['File', 'Directory', 'Local']
- ['TS', 'TypeAlias']
- ['Value', 'TS', 'Declared']
- ['Json', 'Value', 'Array']
- ['Type', 'TS', 'NotIdentified']
- ['TS', 'ExternalModule']

Data labels on pie: 13.78% (370), 12.59% (338), 10.84% (291), 10.28% (276), 8.01% (215), 5.07% (136), 4.95% (133), 4.43% (119), 3.76% (101), 3.39% (91), 2.91% (78), 2.42% (65), 1.75% (47), 1.49% (40), 1.49% (40), 1.45% (39), 1.27% (34), 1.27% (34), 1.23% (33), 1.08% (29), 0.89% (24), 0.74% (20), 0.71% (19), 0.63% (17), 0.63% (17), 0.60% (16), 0.48% (13), 0.45% (12), 0.41% (11), 0.41% (11)
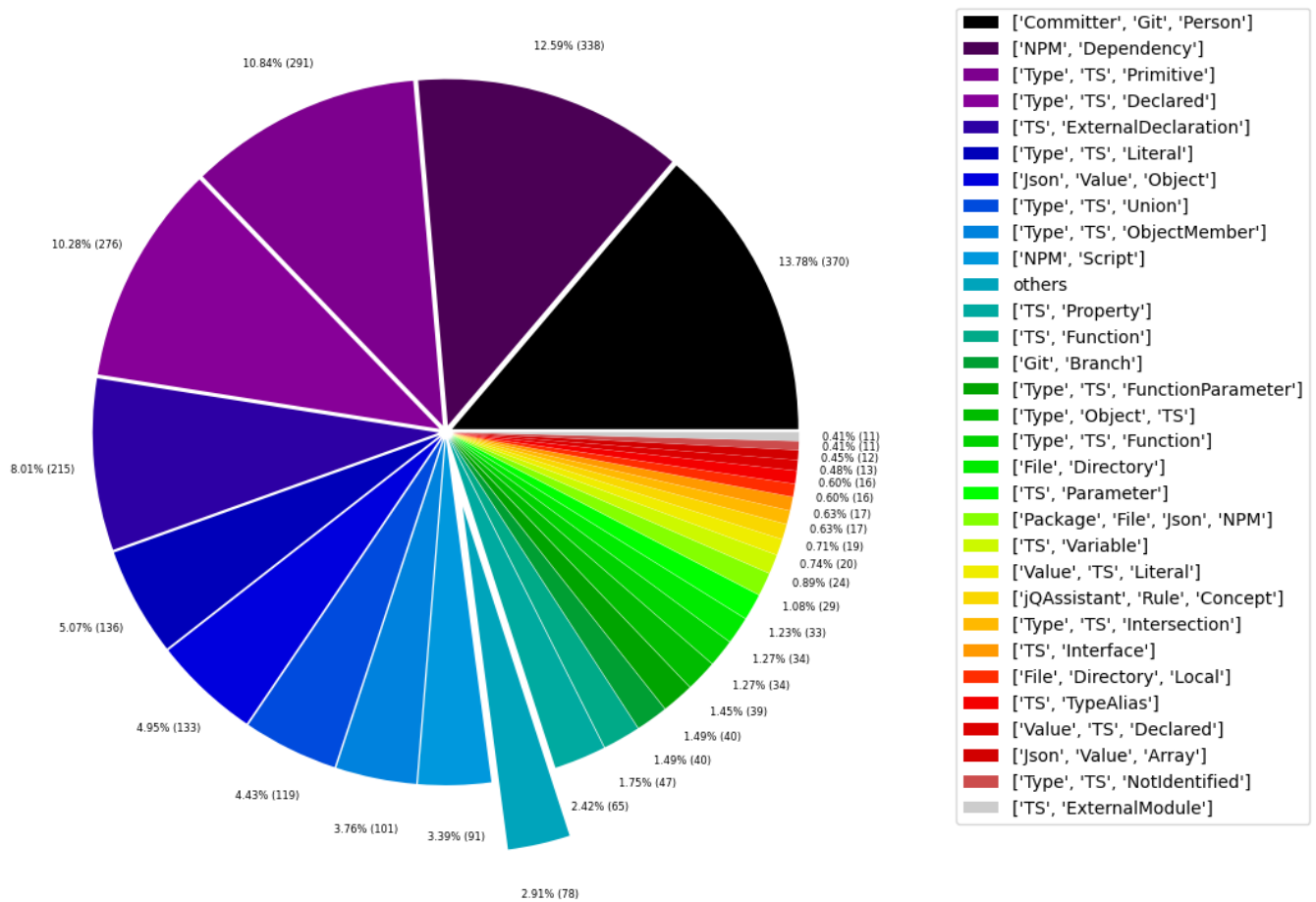
Table 1c - Highest node count by single label

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	103254	96.680681
1	Change	83712	78.382756
2	Commit	10840	10.149908
3	File	5684	5.322147
4	Person	1608	1.505632
5	TS	1589	1.487842
6	Tag	1462	1.368927
7	Json	1445	1.353009
8	Author	1238	1.159187
9	Type	1073	1.004691
10	Value	806	0.754689
11	Key	668	0.625474
12	Scalar	603	0.564612
13	NPM	464	0.434461
14	Committer	370	0.346445
15	Dependency	338	0.316482
16	Primitive	291	0.272474
17	Declared	289	0.270602
18	ExternalDeclaration	215	0.201313
19	Object	175	0.163859
20	Literal	156	0.146069
21	Union	119	0.111424
22	ObjectMember	102	0.095507
23	Script	91	0.085207
24	Function	85	0.079589
25	Property	65	0.060862
26	Directory	50	0.046817
27	Branch	40	0.037454
28	FunctionParameter	40	0.037454
29	Parameter	33	0.030899
30	Package	29	0.027154
31	Local	28	0.026217
32	Variable	24	0.022472
33	jQAssistant	20	0.018727
34	Concept	19	0.017790
35	Rule	19	0.017790
36	Interface	17	0.015918
37	Intersection	17	0.015918
38	TypeAlias	16	0.014981
39	Array	12	0.011236

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
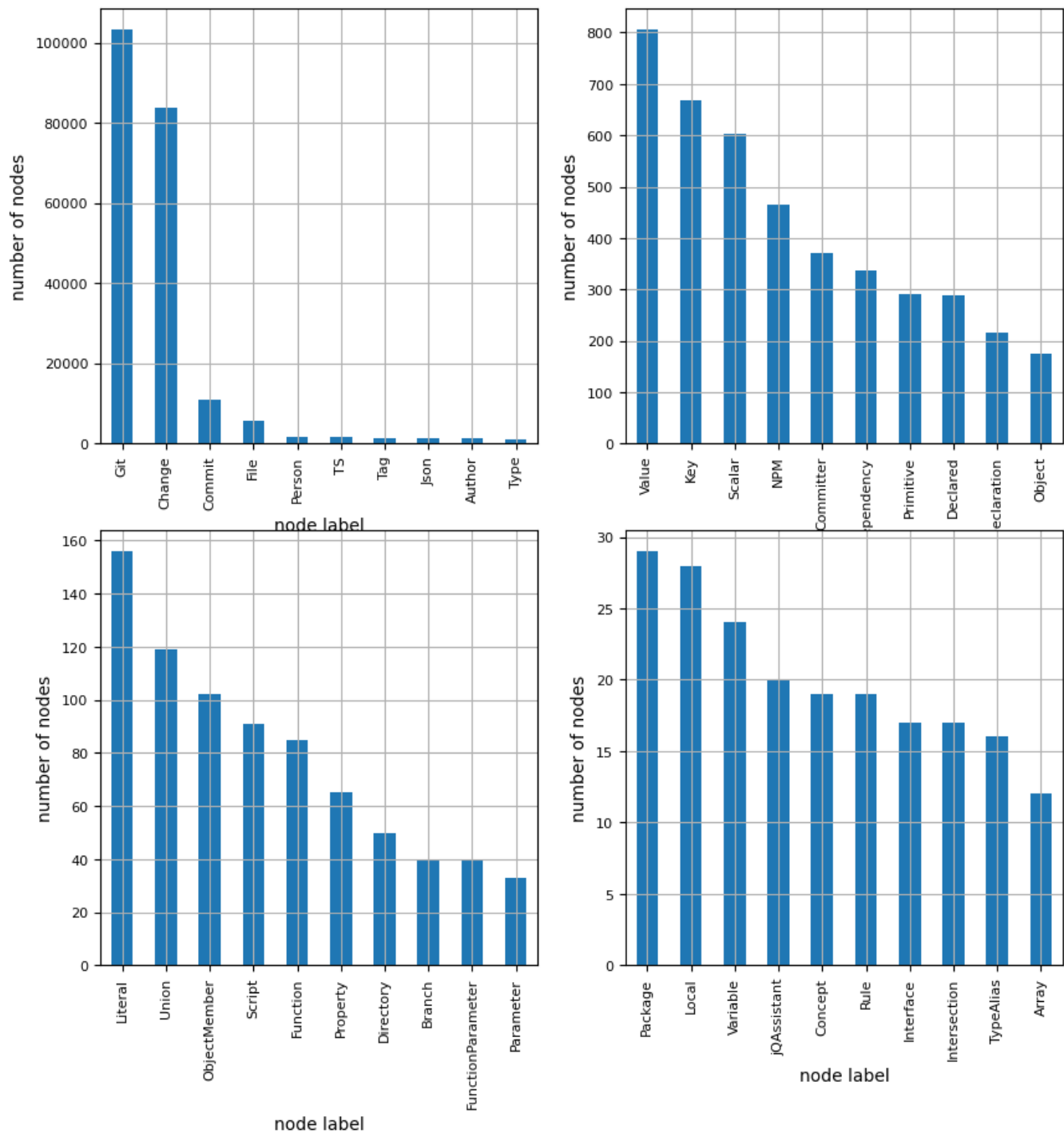
Relationship Types

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: 319080
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	83712	26.235427
1	MODIFIES	83712	26.235427
2	UPDATES	54969	17.227341
3	COMMITTED	21680	6.794534
4	CREATES	19972	6.259245
5	DELETES	12041	3.773662
6	HAS_PARENT	11897	3.728532
7	HAS_COMMIT	10840	3.397267
8	HAS_FILE	5591	1.752225
9	RENAMES	3270	1.024821
10	HAS_NEW_NAME	1751	0.548765
11	HAS_TAG	1462	0.458192
12	ON_COMMIT	1462	0.458192
13	HAS_AUTHOR	1238	0.387990
14	DEPENDS_ON	887	0.277987
15	HAS_KEY	668	0.209352
16	HAS_VALUE	668	0.209352
17	CONTAINS	594	0.186160
18	HAS_COMMITTER	370	0.115958
19	OF_TYPE	337	0.105616
20	EXPORTS	309	0.096841
21	REFERENCES	197	0.061740
22	DECLARES	186	0.058293
23	DECLARES_DEV_DEPENDENCY	169	0.052965
24	DECLARES_DEPENDENCY	161	0.050458
25	HAS_MEMBER	102	0.031967
26	HAS_TYPE_ARGUMENT	94	0.029460
27	DECLARES_SCRIPT	91	0.028519
28	RETURNS	82	0.025699
29	COPIES	79	0.024759

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)

CONTAINS_CHANGE
MODIFIES
UPDATES
COMMITTED
CREATES
DELETES
HAS_PARENT
HAS_COMMIT
others
HAS_FILE
RENAMES
HAS_NEW_NAME

26.24% (83712)
26.24% (83712)
0.55% (1751)
1.02% (3270)
1.75% (5591)
3.02% (9645)
3.40% (10840)
3.73% (11897)
3.77% (12041)
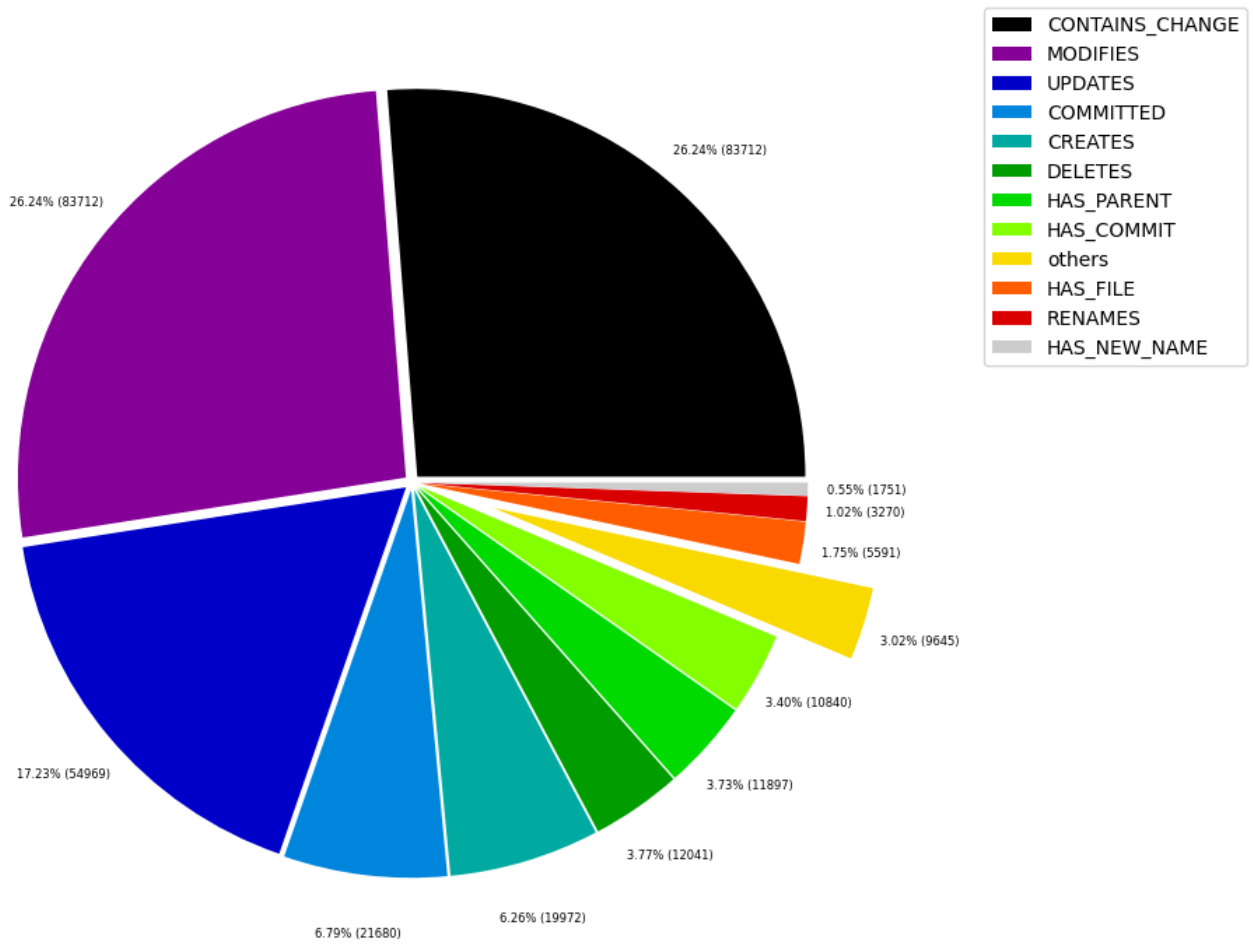6.26% (19972)
6.79% (21680)
17.23% (54969)

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.
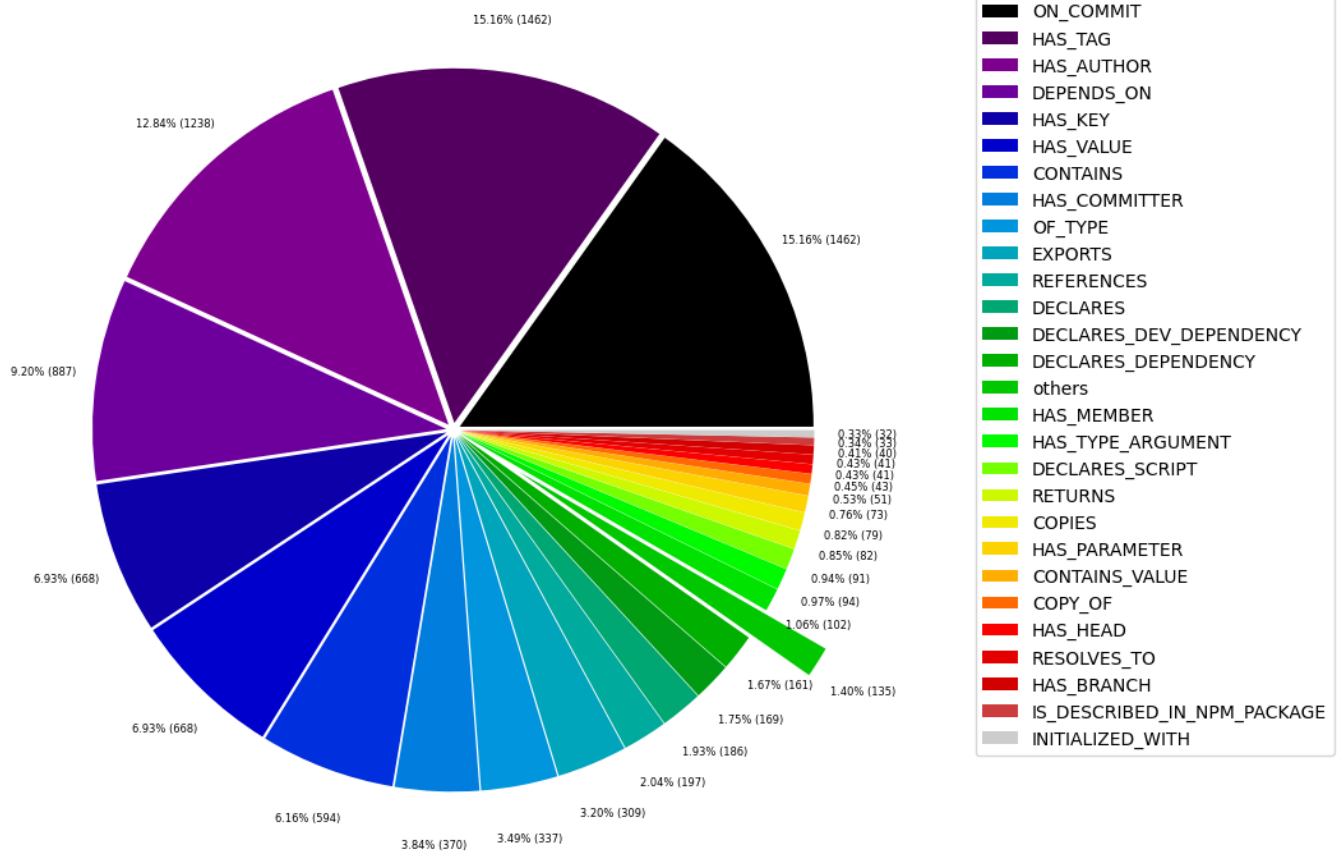
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONSTRAINED_BY	4	0.001254
1	REFERENCED_PROJECTS	5	0.001567
2	MEMBER	6	0.001880
3	HAS_ROOT	6	0.001880
4	HAS_NPM_PACKAGE	6	0.001880
5	HAS_CONFIG	6	0.001880
6	HAS_ARGUMENT	6	0.001880
7	EXTENDS	6	0.001880
8	DECLARES_ENGINE	6	0.001880
9	CONTAINS_PROJECT	6	0.001880
10	CALLS	6	0.001880
11	PARENT	6	0.001880
12	DECLARES_PEER_DEPENDENCY	8	0.002507
13	USES	11	0.003447
14	INCLUDES_CONCEPT	19	0.005955
15	REQUIRES_CONCEPT	28	0.008775
16	INITIALIZED_WITH	32	0.010029
17	IS_DESCRIBED_IN_NPM_PACKAGE	33	0.010342
18	HAS_BRANCH	40	0.012536
19	RESOLVES_TO	41	0.012849
20	HAS_HEAD	41	0.012849
21	COPY_OF	43	0.013476
22	CONTAINS_VALUE	51	0.015983
23	HAS_PARAMETER	73	0.022878
24	COPIES	79	0.024759
25	RETURNS	82	0.025699
26	DECLARES_SCRIPT	91	0.028519
27	HAS_TYPE_ARGUMENT	94	0.029460
28	HAS_MEMBER	102	0.031967
29	DECLARES_DEPENDENCY	161	0.050458

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)

Legend:
- ON_COMMIT
- HAS_TAG
- HAS_AUTHOR
- DEPENDS_ON
- HAS_KEY
- HAS_VALUE
- CONTAINS
- HAS_COMMITTER
- OF_TYPE
- EXPORTS
- REFERENCES
- DECLARES
- DECLARES_DEV_DEPENDENCY
- DECLARES_DEPENDENCY
- others
- HAS_MEMBER
- HAS_TYPE_ARGUMENT
- DECLARES_SCRIPT
- RETURNS
- COPIES
- HAS_PARAMETER
- CONTAINS_VALUE
- COPY_OF
- HAS_HEAD
- RESOLVES_TO
- HAS_BRANCH
- IS_DESCRIBED_IN_NPM_PACKAGE
- INITIALIZED_WITH

Pie chart values:
- 15.16% (1462)
- 15.16% (1462)
- 12.84% (1238)
- 9.20% (887)
- 6.93% (668)
- 6.93% (668)
- 6.16% (594)
- 3.84% (370)
- 3.49% (337)
- 3.20% (309)
- 2.04% (197)
- 1.93% (186)
- 1.75% (169)
- 1.67% (161)
- 1.40% (135)
- 1.06% (102)
- 0.97% (94)
- 0.94% (91)
- 0.85% (82)
- 0.82% (79)
- 0.76% (73)
- 0.53% (51)
- 0.45% (43)
- 0.43% (41)
- 0.43% (41)
- 0.41% (40)
- 0.34% (33)
- 0.33% (32)

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	numberOfNodesWithSame
0	[Git, Change]	MODIFIES	[File, Git]	83712	83712	
1	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	83712	10840	
2	[Git, Change]	UPDATES	[File, Git]	54969	83712	
3	[Git, Change]	CREATES	[File, Git]	19972	83712	
4	[Git, Change]	DELETES	[File, Git]	12041	83712	
5	[Git, Commit]	HAS_PARENT	[Git, Commit]	11897	10840	
6	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	10840	1	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	10840	1238	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10840	370	
9	[Repository, File, Git]	HAS_FILE	[File, Git]	5591	1	
10	[Git, Change]	RENAMES	[File, Git]	3270	83712	
11	[File, Git]	HAS_NEW_NAME	[File, Git]	1751	5591	
12	[Repository, File, Git]	HAS_TAG	[Git, Tag]	1462	1	
13	[Git, Tag]	ON_COMMIT	[Git, Commit]	1462	1462	
14	[Repository, File, Git]	HAS_AUTHOR	[Author, Git, Person]	1238	1	
15	[Json, Value, Object]	HAS_KEY	[Json, Key]	668	133	
16	[Json, Key]	HAS_VALUE	[Json, Value, Scalar]	552	668	
17	[Repository, File, Git]	HAS_COMMITTER	[Committer, Git, Person]	370	1	
18	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	293	47	
19	[File, TS, Local, Module]	DEPENDS_ON	[TS, ExternalDeclaration]	236	6	
20	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	215	11	
21	[Package, File, Json, NPM]	DECLARES_DEV_DEPENDENCY	[NPM, Dependency]	169	29	
22	[Package, File, Json, NPM]	DECLARES_DEPENDENCY	[NPM, Dependency]	161	29	
23	[Type, TS, Union]	CONTAINS	[Type, TS, Primitive]	147	119	
24	[Type, TS, Declared]	REFERENCES	[TS, ExternalDeclaration]	143	276	
25	[Type, TS, Union]	CONTAINS	[Type, TS, Literal]	119	119	
26	[Json, Key]	HAS_VALUE	[Json, Value, Object]	104	668	
27	[Type, Object, TS]	HAS_MEMBER	[Type, TS, ObjectMember]	101	39	
28	[Package, File, Json, NPM]	DECLARES_SCRIPT	[NPM, Script]	91	29	
29	[Git, Change]	COPIES	[File, Git]	79	83712	

Graph Density

```
total_number_of_nodes (vertices): 106799
total_number_of_relationships (edges): 319080
-> total directed graph density: 2.7974947319815413e-05
-> total directed graph density in percent: 0.002797494731981541
```