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%).
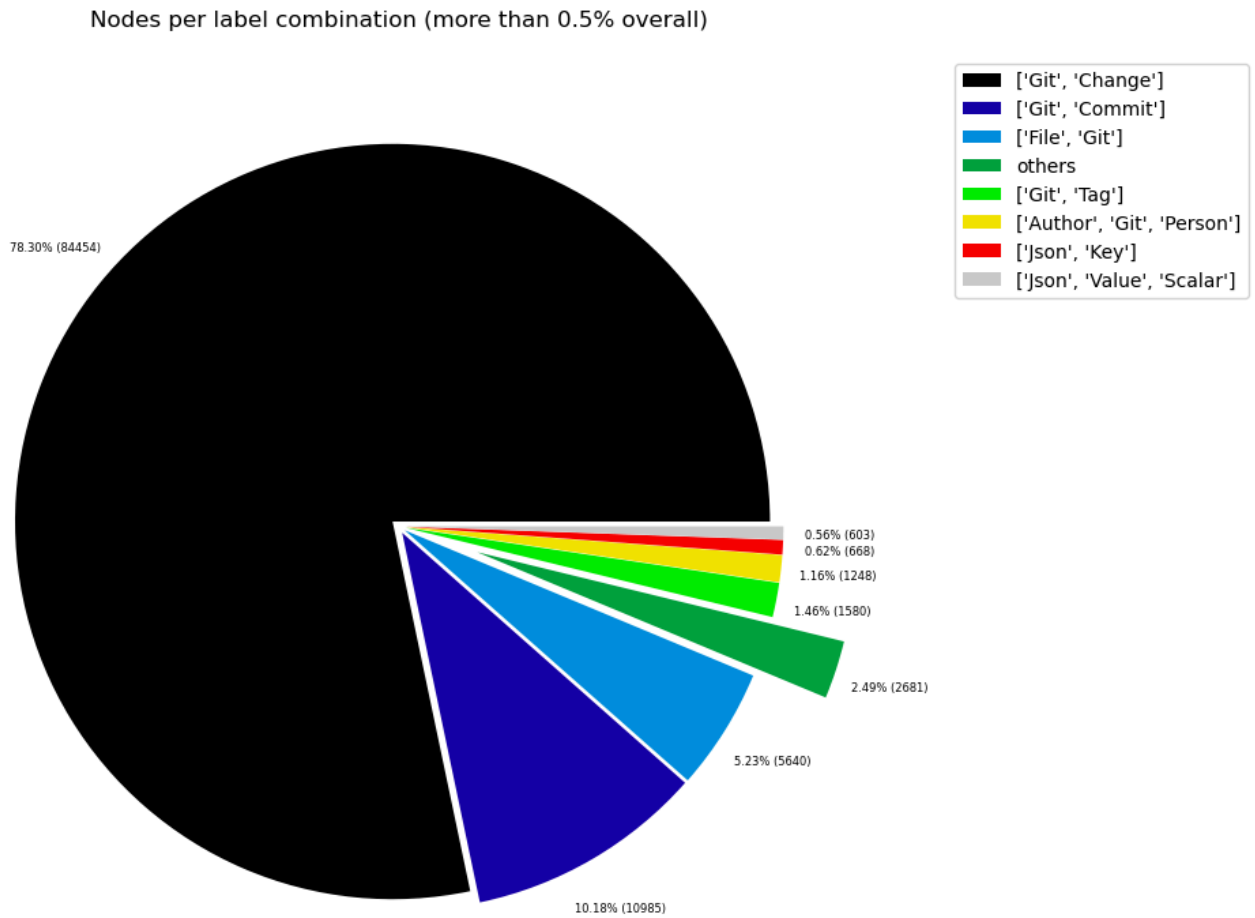
The whole table can be found in the CSV report `Node_label_combination_count`.

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	84454	78.300374
1	[Git, Commit]	10985	10.184593
2	[File, Git]	5640	5.229049
3	[Git, Tag]	1580	1.464875
4	[Author, Git, Person]	1248	1.157066
5	[Json, Key]	668	0.619327
6	[Json, Value, Scalar]	603	0.559063
7	[Committer, Git, Person]	370	0.343040
8	[NPM, Dependency]	338	0.313372
9	[Type, TS, Primitive]	291	0.269797
10	[Type, TS, Declared]	276	0.255890
11	[TS, ExternalDeclaration]	215	0.199334
12	[Type, TS, Literal]	136	0.126091
13	[Json, Value, Object]	133	0.123309
14	[Type, TS, Union]	119	0.110329
15	[Type, TS, ObjectMember]	101	0.093641
16	[NPM, Script]	91	0.084369
17	[TS, Property]	65	0.060264
18	[TS, Function]	47	0.043575
19	[Type, TS, FunctionParameter]	40	0.037085
20	[Type, Object, TS]	39	0.036158
21	[Git, Branch]	36	0.033377
22	[File, Directory]	34	0.031523
23	[Type, TS, Function]	34	0.031523
24	[TS, Parameter]	33	0.030595
25	[Package, File, Json, NPM]	29	0.026887
26	[TS, Variable]	24	0.022251
27	[Value, TS, Literal]	20	0.018543
28	[jQAssistant, Rule, Concept]	19	0.017616
29	[Type, TS, Intersection]	17	0.015761

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']

78.30% (84454)
0.56% (603)
0.62% (668)
1.16% (1248)
1.46% (1580)
2.49% (2681)
5.23% (5640)
10.18% (10985)

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	0.000927
1	[File, TS, Scan]	1	0.000927
2	[TS, Method]	1	0.000927
3	[Repository, File, Git]	1	0.000927
4	[TS, Constructor]	1	0.000927
5	[Value, TS, ObjectMember]	1	0.000927
6	[TS, Class]	1	0.000927
7	[TS, Enum]	2	0.001854
8	[Value, Object, TS]	3	0.002781
9	[Type, TS, Tuple]	3	0.002781
10	[Value, TS, Function]	4	0.003709
11	[TS, TypeParameter]	4	0.003709
12	[Value, TS, Complex]	5	0.004636
13	[NPM, Engine]	6	0.005563
14	[Project, TS]	6	0.005563
15	[File, Local]	6	0.005563
16	[Value, TS, Call]	6	0.005563
17	[Value, TS, Member]	6	0.005563
18	[File, TS, Local, Module]	6	0.005563
19	[Type, TS, TypeParameterReference]	6	0.005563
20	[TS, EnumMember]	8	0.007417
21	[Type, TS, NotIdentified]	11	0.010198
22	[TS, ExternalModule]	11	0.010198
23	[Json, Value, Array]	12	0.011126
24	[Value, TS, Declared]	13	0.012053
25	[TS, TypeAlias]	16	0.014834
26	[File, Directory, Local]	16	0.014834
27	[Type, TS, Intersection]	17	0.015761
28	[TS, Interface]	17	0.015761
29	[jQAssistant, Rule, Concept]	19	0.017616

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']
- ['Type', 'TS', 'FunctionParameter']
- ['Type', 'Object', 'TS']
- ['Git', 'Branch']
- ['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']

Pie chart values: 13.80% (370), 12.61% (338), 10.85% (291), 10.29% (276), 8.02% (215), 5.07% (136), 4.96% (133), 4.44% (119), 3.77% (101), 3.39% (91), 2.91% (78), 2.42% (65), 1.75% (47), 1.49% (40), 1.45% (39), 1.34% (36), 1.27% (34), 1.27% (34), 1.23% (33), 1.08% (29), 0.90% (24), 0.75% (20), 0.71% (19), 0.63% (17), 0.63% (17), 0.60% (16), 0.60% (16), 0.48% (13), 0.45% (12), 0.41% (11), 0.41% (11)
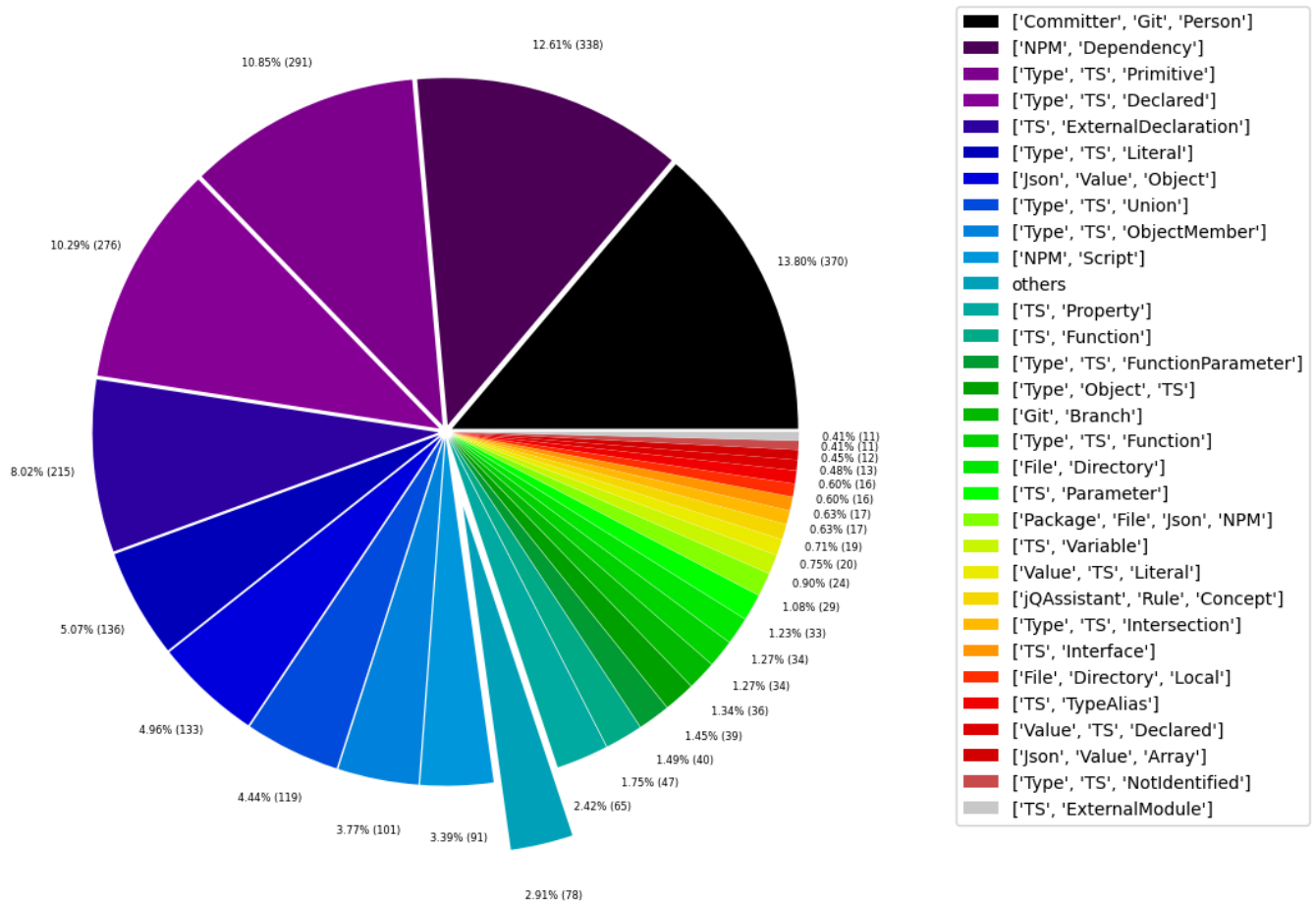
Table 1c - Highest node count by single label

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	104314	96.713302
1	Change	84454	78.300374
2	Commit	10985	10.184593
3	File	5733	5.315273
4	Person	1618	1.500107
5	TS	1589	1.473220
6	Tag	1580	1.464875
7	Json	1445	1.339712
8	Author	1248	1.157066
9	Type	1073	0.994817
10	Value	806	0.747272
11	Key	668	0.619327
12	Scalar	603	0.559063
13	NPM	464	0.430191
14	Committer	370	0.343040
15	Dependency	338	0.313372
16	Primitive	291	0.269797
17	Declared	289	0.267942
18	ExternalDeclaration	215	0.199334
19	Object	175	0.162249
20	Literal	156	0.144633
21	Union	119	0.110329
22	ObjectMember	102	0.094568
23	Script	91	0.084369
24	Function	85	0.078807
25	Property	65	0.060264
26	Directory	50	0.046357
27	FunctionParameter	40	0.037085
28	Branch	36	0.033377
29	Parameter	33	0.030595
30	Package	29	0.026887
31	Local	28	0.025960
32	Variable	24	0.022251
33	jQAssistant	20	0.018543
34	Concept	19	0.017616
35	Rule	19	0.017616
36	Interface	17	0.015761
37	Intersection	17	0.015761
38	TypeAlias	16	0.014834
39	Array	12	0.011126

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
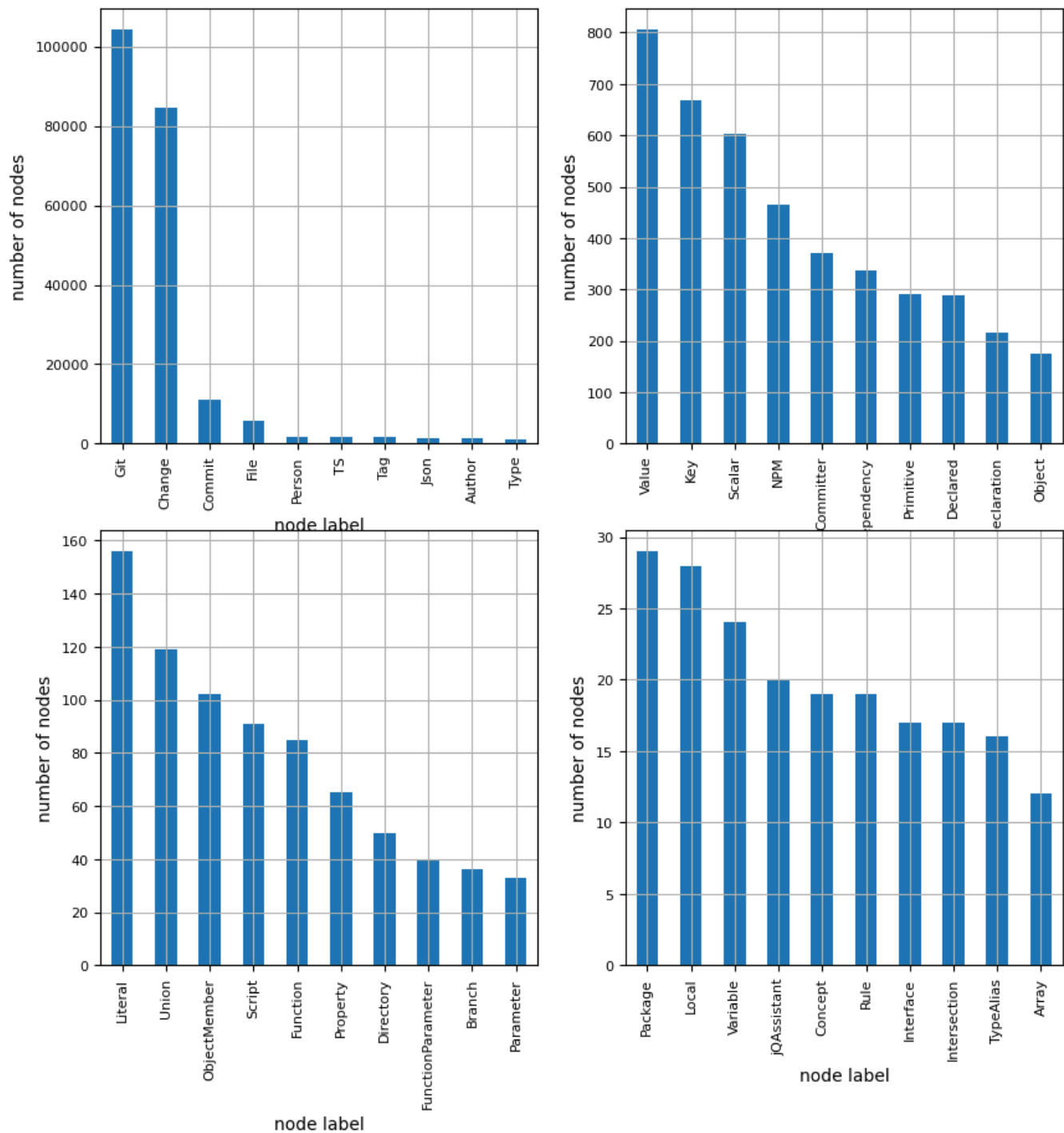
Relationship Types

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: 322175
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	84454	26.213704
1	MODIFIES	84454	26.213704
2	UPDATES	56112	17.416621
3	COMMITTED	21970	6.819275
4	CREATES	19756	6.132071
5	HAS_PARENT	12050	3.740203
6	DELETES	11853	3.679056
7	HAS_COMMIT	10985	3.409638
8	HAS_FILE	5640	1.750601
9	RENAMES	3267	1.014045
10	HAS_NEW_NAME	1751	0.543493
11	HAS_TAG	1580	0.490417
12	ON_COMMIT	1580	0.490417
13	HAS_AUTHOR	1248	0.387367
14	DEPENDS_ON	887	0.275316
15	HAS_KEY	668	0.207341
16	HAS_VALUE	668	0.207341
17	CONTAINS	594	0.184372
18	HAS_COMMITTER	370	0.114844
19	OF_TYPE	337	0.104602
20	EXPORTS	309	0.095911
21	REFERENCES	197	0.061147
22	DECLARES	186	0.057733
23	DECLARES_DEV_DEPENDENCY	169	0.052456
24	DECLARES_DEPENDENCY	161	0.049973
25	HAS_MEMBER	102	0.031660
26	HAS_TYPE_ARGUMENT	94	0.029177
27	DECLARES_SCRIPT	91	0.028246
28	RETURNS	82	0.025452
29	COPIES	79	0.024521

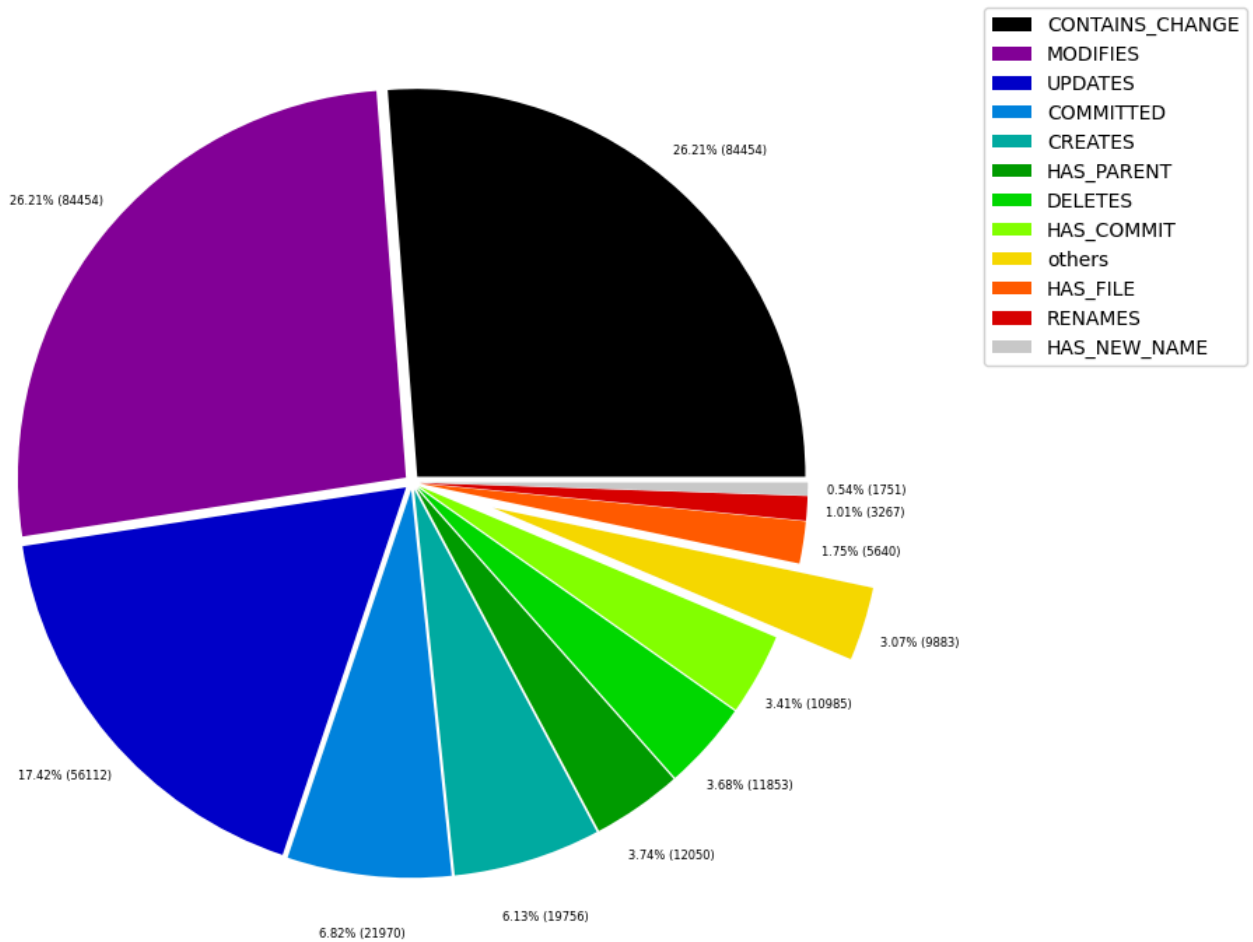# Chart 2a - Highest relationship count by type

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)

Legend:
- CONTAINS_CHANGE (black)
- MODIFIES (purple)
- UPDATES (blue)
- COMMITTED (light blue)
- CREATES (teal)
- HAS_PARENT (dark green)
- DELETES (green)
- HAS_COMMIT (light green)
- others (yellow)
- HAS_FILE (orange)
- RENAMES (red)
- HAS_NEW_NAME (gray)

Pie chart values:
- 26.21% (84454) — CONTAINS_CHANGE
- 26.21% (84454) — MODIFIES
- 17.42% (56112) — UPDATES
- 6.82% (21970)
- 6.13% (19756)
- 3.74% (12050)
- 3.68% (11853)
- 3.41% (10985)
- 3.07% (9883)
- 1.75% (5640)
- 1.01% (3267)
- 0.54% (1751)

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.
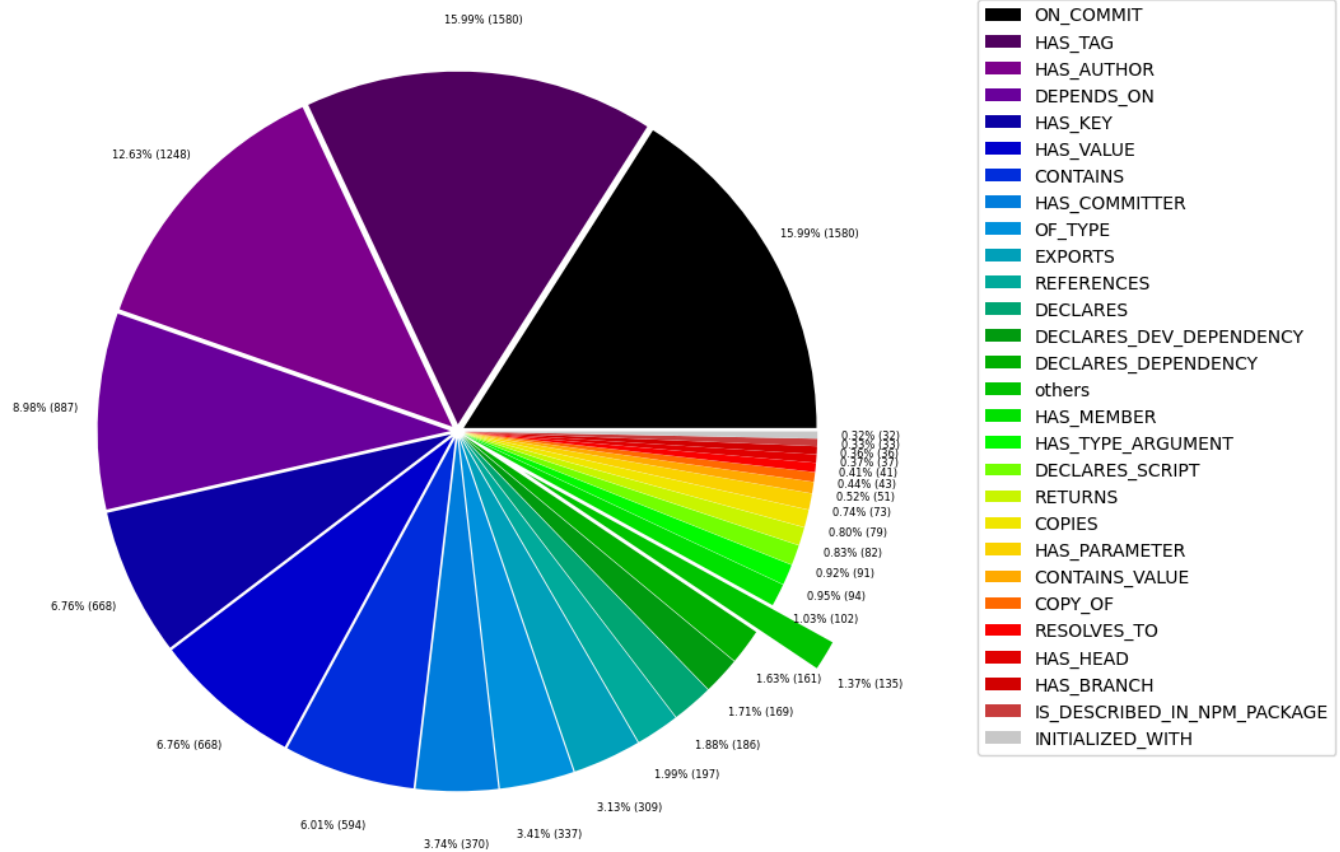
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONSTRAINED_BY	4	0.001242
1	REFERENCED_PROJECTS	5	0.001552
2	MEMBER	6	0.001862
3	HAS_ROOT	6	0.001862
4	HAS_NPM_PACKAGE	6	0.001862
5	HAS_CONFIG	6	0.001862
6	HAS_ARGUMENT	6	0.001862
7	EXTENDS	6	0.001862
8	DECLARES_ENGINE	6	0.001862
9	CONTAINS_PROJECT	6	0.001862
10	CALLS	6	0.001862
11	PARENT	6	0.001862
12	DECLARES_PEER_DEPENDENCY	8	0.002483
13	USES	11	0.003414
14	INCLUDES_CONCEPT	19	0.005897
15	REQUIRES_CONCEPT	28	0.008691
16	INITIALIZED_WITH	32	0.009932
17	IS_DESCRIBED_IN_NPM_PACKAGE	33	0.010243
18	HAS_BRANCH	36	0.011174
19	HAS_HEAD	37	0.011484
20	RESOLVES_TO	41	0.012726
21	COPY_OF	43	0.013347
22	CONTAINS_VALUE	51	0.015830
23	HAS_PARAMETER	73	0.022658
24	COPIES	79	0.024521
25	RETURNS	82	0.025452
26	DECLARES_SCRIPT	91	0.028246
27	HAS_TYPE_ARGUMENT	94	0.029177
28	HAS_MEMBER	102	0.031660
29	DECLARES_DEPENDENCY	161	0.049973

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>
```

15.99% (1580)
12.63% (1248)
8.98% (887)
6.76% (668)
6.76% (668)
6.01% (594)
3.74% (370)
3.41% (337)
3.13% (309)
1.99% (197)
1.88% (186)
1.71% (169)
1.63% (161)
1.37% (135)
1.03% (102)
0.95% (94)
0.92% (91)
0.83% (82)
0.80% (79)
0.74% (73)
0.52% (51)
0.44% (43)
0.41% (41)
0.37% (37)
0.36% (36)
0.33% (33)
0.32% (32)
15.99% (1580)

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
- RESOLVES_TO
- HAS_HEAD
- HAS_BRANCH
- IS_DESCRIBED_IN_NPM_PACKAGE
- INITIALIZED_WITH

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	numberOf
0	[Git, Change]	MODIFIES	[File, Git]	84454	84454	
1	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	84454	10985	
2	[Git, Change]	UPDATES	[File, Git]	56112	84454	
3	[Git, Change]	CREATES	[File, Git]	19756	84454	
4	[Git, Commit]	HAS_PARENT	[Git, Commit]	12050	10985	
5	[Git, Change]	DELETES	[File, Git]	11853	84454	
6	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	10985	1	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	10985	1248	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10985	370	
9	[Repository, File, Git]	HAS_FILE	[File, Git]	5640	1	
10	[Git, Change]	RENAMES	[File, Git]	3267	84454	
11	[File, Git]	HAS_NEW_NAME	[File, Git]	1751	5640	
12	[Repository, File, Git]	HAS_TAG	[Git, Tag]	1580	1	
13	[Git, Tag]	ON_COMMIT	[Git, Commit]	1580	1580	
14	[Repository, File, Git]	HAS_AUTHOR	[Author, Git, Person]	1248	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	84454	

Graph Density

```
total_number_of_nodes (vertices): 107859
total_number_of_relationships (edges): 322175
-> total directed graph density: 2.7693834006913824e-05
-> total directed graph density in percent: 0.0027693834006913822
```