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]	78348	78.007109
1	[Git, Commit]	10349	10.303972
2	[File, Git]	5369	5.345640
3	[Git, Tag]	1222	1.216683
4	[Author, Git, Person]	1195	1.189801
5	[Json, Key]	668	0.665094
6	[Json, Value, Scalar]	603	0.600376
7	[Committer, Git, Person]	371	0.369386
8	[NPM, Dependency]	330	0.328564
9	[Type, TS, Primitive]	291	0.289734
10	[Type, TS, Declared]	276	0.274799
11	[TS, ExternalDeclaration]	215	0.214065
12	[Type, TS, Literal]	136	0.135408
13	[Json, Value, Object]	133	0.132421
14	[Type, TS, Union]	119	0.118482
15	[Type, TS, ObjectMember]	101	0.100561
16	[NPM, Script]	91	0.090604
17	[TS, Property]	65	0.064717
18	[TS, Function]	47	0.046796
19	[Type, TS, FunctionParameter]	40	0.039826
20	[Type, Object, TS]	39	0.038830
21	[File, Directory]	34	0.033852
22	[Type, TS, Function]	34	0.033852
23	[TS, Parameter]	33	0.032856
24	[Git, Branch]	31	0.030865
25	[Package, File, Json, NPM]	29	0.028874
26	[TS, ExternalModule]	25	0.024891
27	[TS, Variable]	24	0.023896
28	[Value, TS, Literal]	20	0.019913
29	[jQAssistant, Rule, Concept]	19	0.018917

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']

78.01% (78348)
0.60% (603)
0.67% (668)
1.19% (1195)
1.22% (1222)
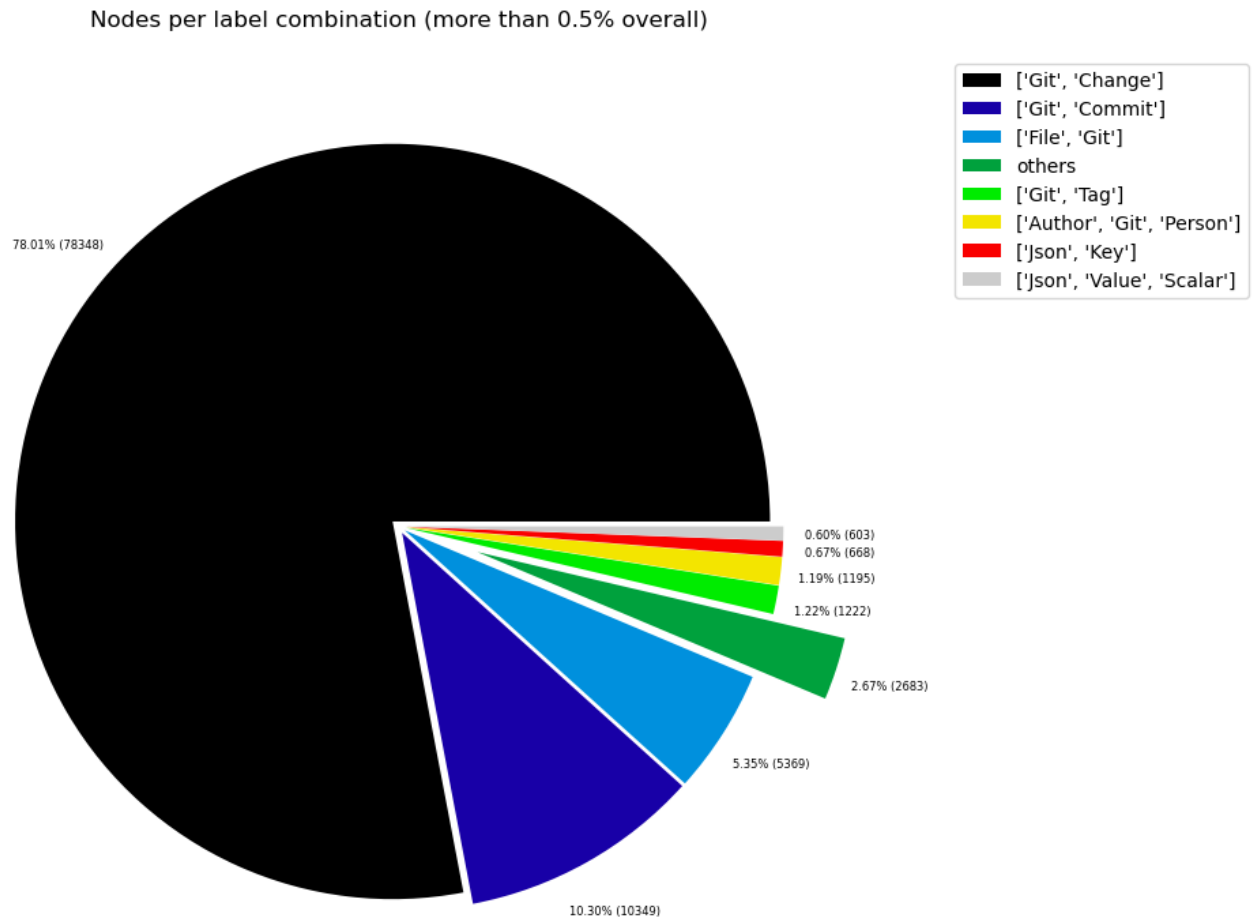2.67% (2683)
5.35% (5369)
10.30% (10349)

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	0.000996
1	[File, TS, Scan]	1	0.000996
2	[TS, Method]	1	0.000996
3	[Repository, File, Git]	1	0.000996
4	[TS, Constructor]	1	0.000996
5	[Value, TS, ObjectMember]	1	0.000996
6	[TS, Class]	1	0.000996
7	[TS, Enum]	2	0.001991
8	[Value, Object, TS]	3	0.002987
9	[Type, TS, Tuple]	3	0.002987
10	[Value, TS, Function]	4	0.003983
11	[TS, TypeParameter]	4	0.003983
12	[Value, TS, Complex]	5	0.004978
13	[NPM, Engine]	6	0.005974
14	[Project, TS]	6	0.005974
15	[File, Local]	6	0.005974
16	[Value, TS, Call]	6	0.005974
17	[Value, TS, Member]	6	0.005974
18	[File, TS, Local, Module]	6	0.005974
19	[Type, TS, TypeParameterReference]	6	0.005974
20	[TS, EnumMember]	8	0.007965
21	[Type, TS, NotIdentified]	11	0.010952
22	[Json, Value, Array]	12	0.011948
23	[Value, TS, Declared]	13	0.012943
24	[TS, TypeAlias]	16	0.015930
25	[File, Directory, Local]	16	0.015930
26	[TS, Interface]	17	0.016926
27	[Type, TS, Intersection]	17	0.016926
28	[jQAssistant, Rule, Concept]	19	0.018917
29	[Value, TS, Literal]	20	0.019913

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']
- ['Type', 'TS', 'Function']
- ['File', 'Directory']
- ['TS', 'Parameter']
- ['Git', 'Branch']
- ['Package', 'File', 'Json', 'NPM']
- ['TS', 'ExternalModule']
- ['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']

Pie chart values: 12.30% (330), 10.85% (291), 10.29% (276), 13.83% (371), 8.01% (215), 5.07% (136), 4.96% (133), 4.44% (119), 3.76% (101), 3.39% (91), 2.91% (78), 2.42% (65), 1.75% (47), 1.49% (40), 1.45% (39), 1.27% (34), 1.27% (34), 1.23% (33), 1.16% (31), 1.08% (29), 0.93% (25), 0.89% (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)
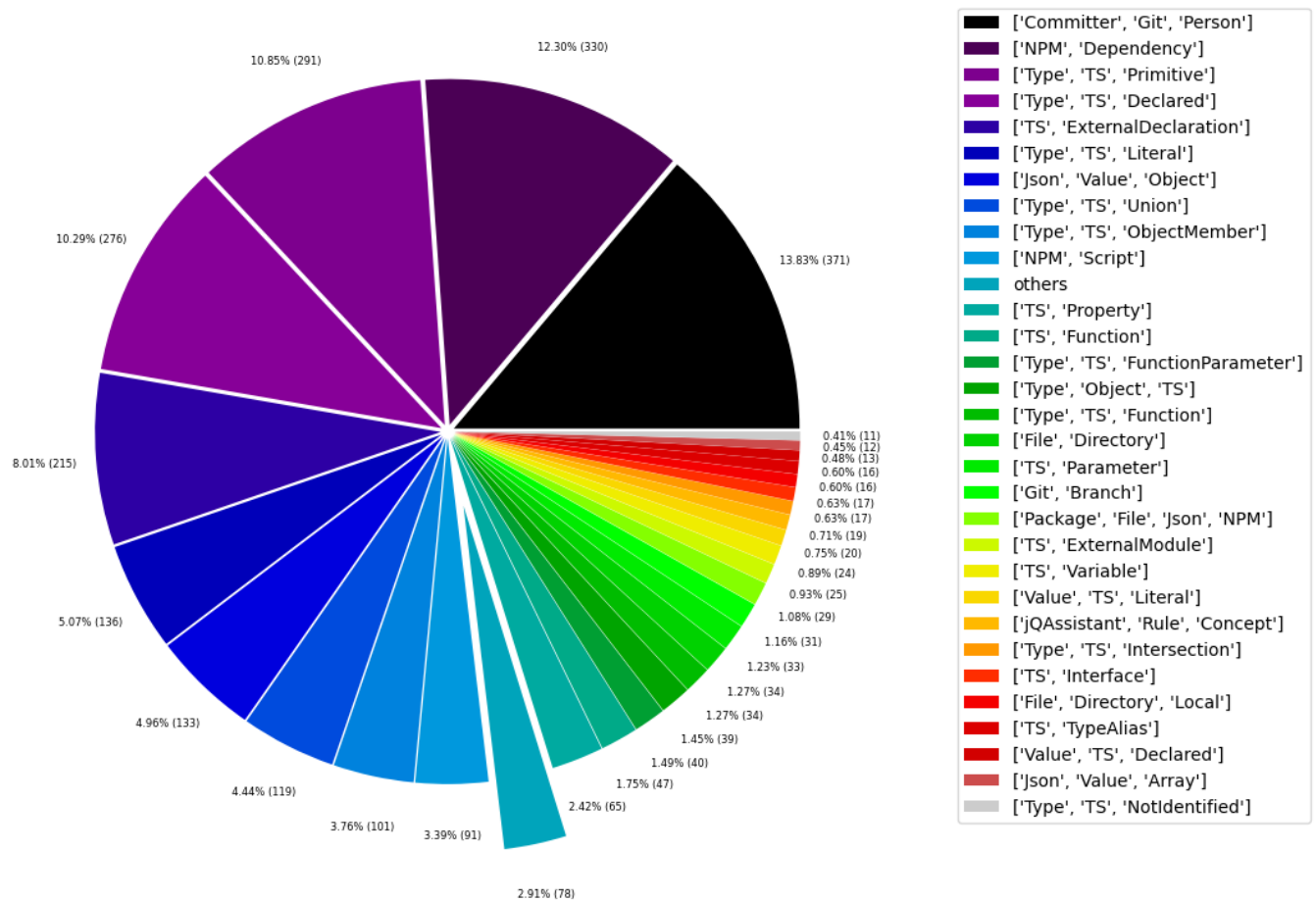
Table 1c - Highest node count by single label

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	96886	96.464450
1	Change	78348	78.007109
2	Commit	10349	10.303972
3	File	5462	5.438235
4	TS	1603	1.596025
5	Person	1566	1.559186
6	Json	1445	1.438713
7	Tag	1222	1.216683
8	Author	1195	1.189801
9	Type	1073	1.068331
10	Value	806	0.802493
11	Key	668	0.665094
12	Scalar	603	0.600376
13	NPM	456	0.454016
14	Committer	371	0.369386
15	Dependency	330	0.328564
16	Primitive	291	0.289734
17	Declared	289	0.287743
18	ExternalDeclaration	215	0.214065
19	Object	175	0.174239
20	Literal	156	0.155321
21	Union	119	0.118482
22	ObjectMember	102	0.101556
23	Script	91	0.090604
24	Function	85	0.084630
25	Property	65	0.064717
26	Directory	50	0.049782
27	FunctionParameter	40	0.039826
28	Parameter	33	0.032856
29	Branch	31	0.030865
30	Package	29	0.028874
31	Local	28	0.027878
32	ExternalModule	25	0.024891
33	Variable	24	0.023896
34	jQAssistant	20	0.019913
35	Concept	19	0.018917
36	Rule	19	0.018917
37	Interface	17	0.016926
38	Intersection	17	0.016926
39	TypeAlias	16	0.015930

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
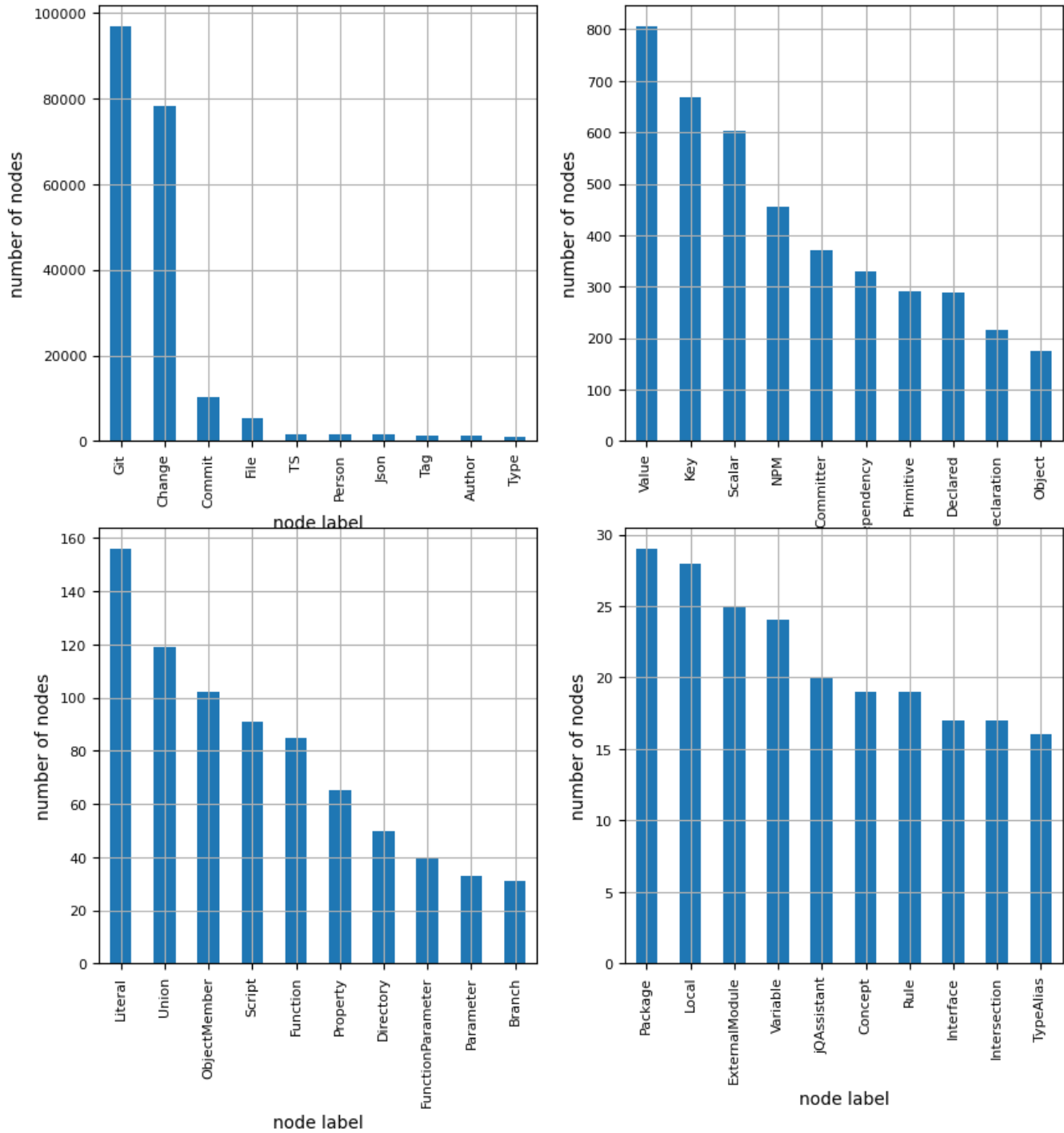
Relationship Types

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: 299525
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	78348	26.157416
1	MODIFIES	78348	26.157416
2	UPDATES	51773	17.285035
3	COMMITTED	20698	6.910275
4	CREATES	18659	6.229530
5	HAS_PARENT	11382	3.800017
6	DELETES	10874	3.630415
7	HAS_COMMIT	10349	3.455137
8	HAS_FILE	5369	1.792505
9	RENAMES	2958	0.987564
10	HAS_NEW_NAME	1656	0.552875
11	HAS_TAG	1222	0.407979
12	ON_COMMIT	1222	0.407979
13	HAS_AUTHOR	1195	0.398965
14	DEPENDS_ON	959	0.320174
15	HAS_KEY	668	0.223020
16	HAS_VALUE	668	0.223020
17	CONTAINS	594	0.198314
18	HAS_COMMITTER	371	0.123863
19	OF_TYPE	337	0.112511
20	EXPORTS	276	0.092146
21	REFERENCES	197	0.065771
22	DECLARES	186	0.062098
23	DECLARES_DEV_DEPENDENCY	169	0.056423
24	DECLARES_DEPENDENCY	161	0.053752
25	HAS_MEMBER	102	0.034054
26	HAS_TYPE_ARGUMENT	94	0.031383
27	DECLARES_SCRIPT	91	0.030381
28	RETURNS	82	0.027377
29	HAS_PARAMETER	73	0.024372

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
■	HAS_PARENT
■	DELETES
■	HAS_COMMIT
■	others
■	HAS_FILE
■	RENAMES
■	HAS_NEW_NAME

26.16% (78348)

26.16% (78348)

0.55% (1656)
0.99% (2958)
1.79% (5369)

3.04% (9111)

3.46% (10349)

17.29% (51773)

3.63% (10874)

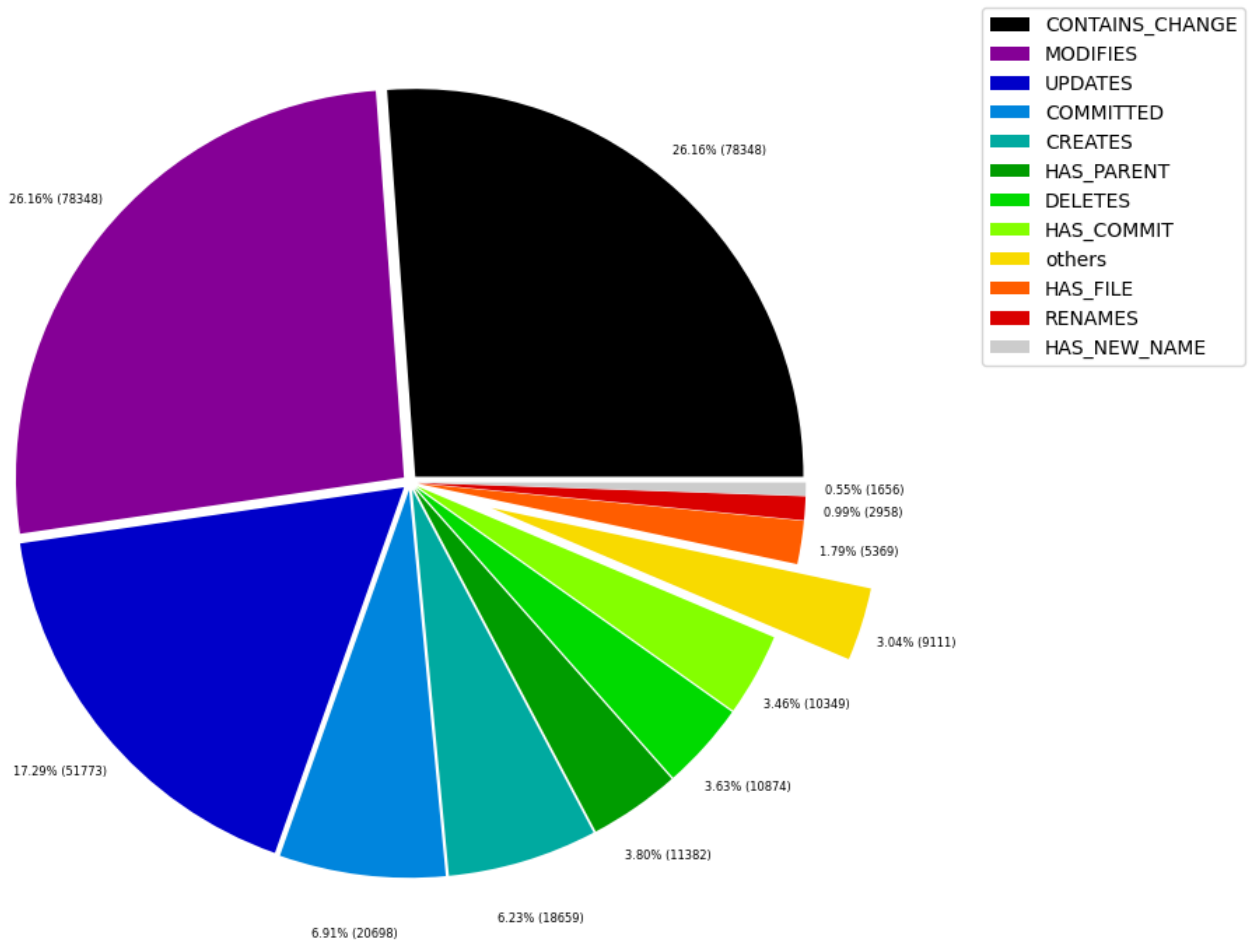3.80% (11382)

6.23% (18659)

6.91% (20698)

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.
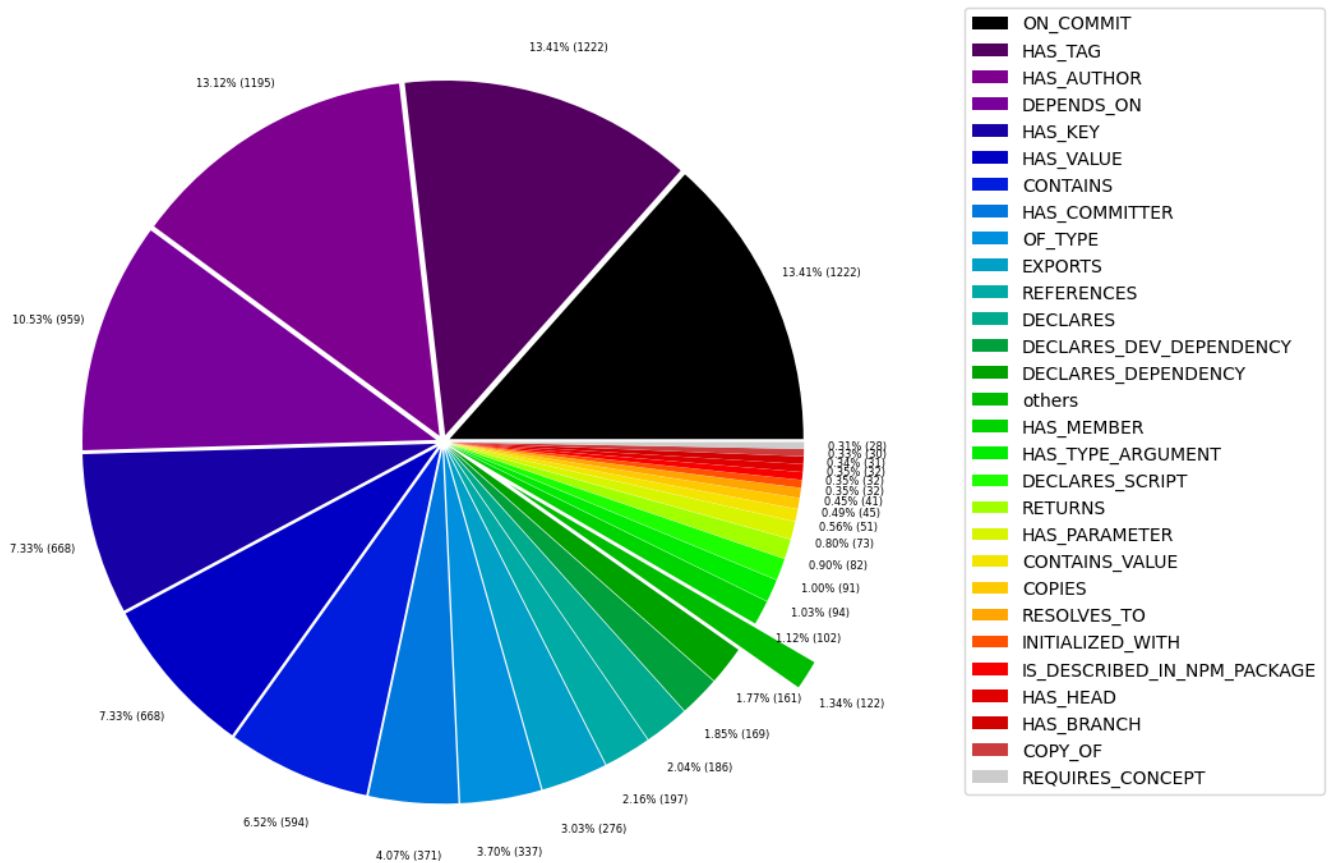
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	PROVIDED_BY_NPM_DEPENDENCY	1	0.000334
1	IS_IMPLEMENTED_IN	2	0.000668
2	CONSTRAINED_BY	4	0.001335
3	REFERENCED_PROJECTS	5	0.001669
4	CONTAINS_PROJECT	6	0.002003
5	DECLARES_ENGINE	6	0.002003
6	EXTENDS	6	0.002003
7	HAS_ARGUMENT	6	0.002003
8	CALLS	6	0.002003
9	HAS_NPM_PACKAGE	6	0.002003
10	HAS_ROOT	6	0.002003
11	MEMBER	6	0.002003
12	PARENT	6	0.002003
13	HAS_CONFIG	6	0.002003
14	SIMILAR	6	0.002003
15	INCLUDES_CONCEPT	19	0.006343
16	USES	25	0.008347
17	REQUIRES_CONCEPT	28	0.009348
18	COPY_OF	30	0.010016
19	HAS_BRANCH	31	0.010350
20	IS_DESCRIBED_IN_NPM_PACKAGE	32	0.010684
21	INITIALIZED_WITH	32	0.010684
22	HAS_HEAD	32	0.010684
23	RESOLVES_TO	41	0.013688
24	COPIES	45	0.015024
25	CONTAINS_VALUE	51	0.017027
26	HAS_PARAMETER	73	0.024372
27	RETURNS	82	0.027377
28	DECLARES_SCRIPT	91	0.030381
29	HAS_TYPE_ARGUMENT	94	0.031383

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>
```

13.41% (1222)
13.12% (1195)
13.41% (1222)
10.53% (959)
0.31% (28)
0.33% (30)
0.34% (31)
0.35% (32)
0.35% (32)
0.45% (41)
0.49% (45)
0.56% (51)
0.80% (73)
0.90% (82)
1.00% (91)
1.03% (94)
1.12% (102)
7.33% (668)
7.33% (668)
1.77% (161)
1.34% (122)
1.85% (169)
2.04% (186)
6.52% (594)
2.16% (197)
3.03% (276)
4.07% (371)
3.70% (337)

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
- HAS_PARAMETER
- CONTAINS_VALUE
- COPIES
- RESOLVES_TO
- INITIALIZED_WITH
- IS_DESCRIBED_IN_NPM_PACKAGE
- HAS_HEAD
- HAS_BRANCH
- COPY_OF
- REQUIRES_CONCEPT

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	numberOfNodes
0	[Git, Change]	MODIFIES	[File, Git]	78348	78348	
1	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	78348	10349	
2	[Git, Change]	UPDATES	[File, Git]	51773	78348	
3	[Git, Change]	CREATES	[File, Git]	18659	78348	
4	[Git, Commit]	HAS_PARENT	[Git, Commit]	11382	10349	
5	[Git, Change]	DELETES	[File, Git]	10874	78348	
6	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	10349	1	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	10349	1195	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10349	371	
9	[Repository, File, Git]	HAS_FILE	[File, Git]	5369	1	
10	[Git, Change]	RENAMES	[File, Git]	2958	78348	
11	[File, Git]	HAS_NEW_NAME	[File, Git]	1656	5369	
12	[Repository, File, Git]	HAS_TAG	[Git, Tag]	1222	1	
13	[Git, Tag]	ON_COMMIT	[Git, Commit]	1222	1222	
14	[Repository, File, Git]	HAS_AUTHOR	[Author, Git, Person]	1195	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]	371	1	
18	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	285	47	
19	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	215	25	
20	[File, TS, Local, Module, Mark4ModuleWeaklyCon...]	DEPENDS_ON	[TS, ExternalDeclaration]	192	2	
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]	142	276	
25	[TS, Function]	DEPENDS_ON	[TS, ExternalModule]	131	47	
26	[Type, TS, Union]	CONTAINS	[Type, TS, Literal]	119	119	
27	[Json, Key]	HAS_VALUE	[Json, Value, Object]	104	668	
28	[Type, Object, TS]	HAS_MEMBER	[Type, TS, ObjectMember]	101	39	
29	[Package, File, Json, NPM]	DECLARES_SCRIPT	[NPM, Script]	91	29	

Graph Density

```
total_number_of_nodes (vertices): 100437
total_number_of_relationships (edges): 299525
-> total directed graph density: 2.969271684070811e-05
-> total directed graph density in percent: 0.002969271684070811
```