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]	83692	76.608755
1	[Git, Commit]	10839	9.921645
2	[File, Git]	5591	5.117808
3	[Git, Tag]	1461	1.337349
4	[Author, Git, Person]	1238	1.133222
5	[Type, TS, Primitive]	811	0.742361
6	[Json, Key]	668	0.611464
7	[Json, Value, Scalar]	603	0.551965
8	[Type, TS, Declared]	598	0.547388
9	[TS, ExternalDeclaration]	450	0.411914
10	[Committer, Git, Person]	370	0.338685
11	[NPM, Dependency]	338	0.309393
12	[Type, TS, ObjectMember]	318	0.291086
13	[Type, TS, Literal]	274	0.250810
14	[Type, TS, Union]	246	0.225180
15	[TS, Property]	137	0.125405
16	[Json, Value, Object]	133	0.121744
17	[Value, TS, Literal]	124	0.113505
18	[TS, Function]	109	0.099775
19	[Type, Object, TS]	109	0.099775
20	[NPM, Script]	91	0.083298
21	[Value, TS, ObjectMember]	88	0.080552
22	[Type, TS, FunctionParameter]	80	0.073229
23	[TS, Parameter]	76	0.069568
24	[Type, TS, Function]	70	0.064076
25	[File, Directory, Local]	64	0.058583
26	[TS, Variable]	59	0.054007
27	[File, TS, Local, Module]	46	0.042107
28	[Git, Branch]	41	0.037530
29	[TS, Interface]	37	0.033869

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']
- ['Type', 'TS', 'Primitive']
- ['Json', 'Key']
- ['Json', 'Value', 'Scalar']
- ['Type', 'TS', 'Declared']

Pie chart values:
- 76.61% (83692)
- 0.55% (598)
- 0.55% (603)
- 0.61% (668)
- 0.74% (811)
- 1.13% (1238)
- 1.34% (1461)
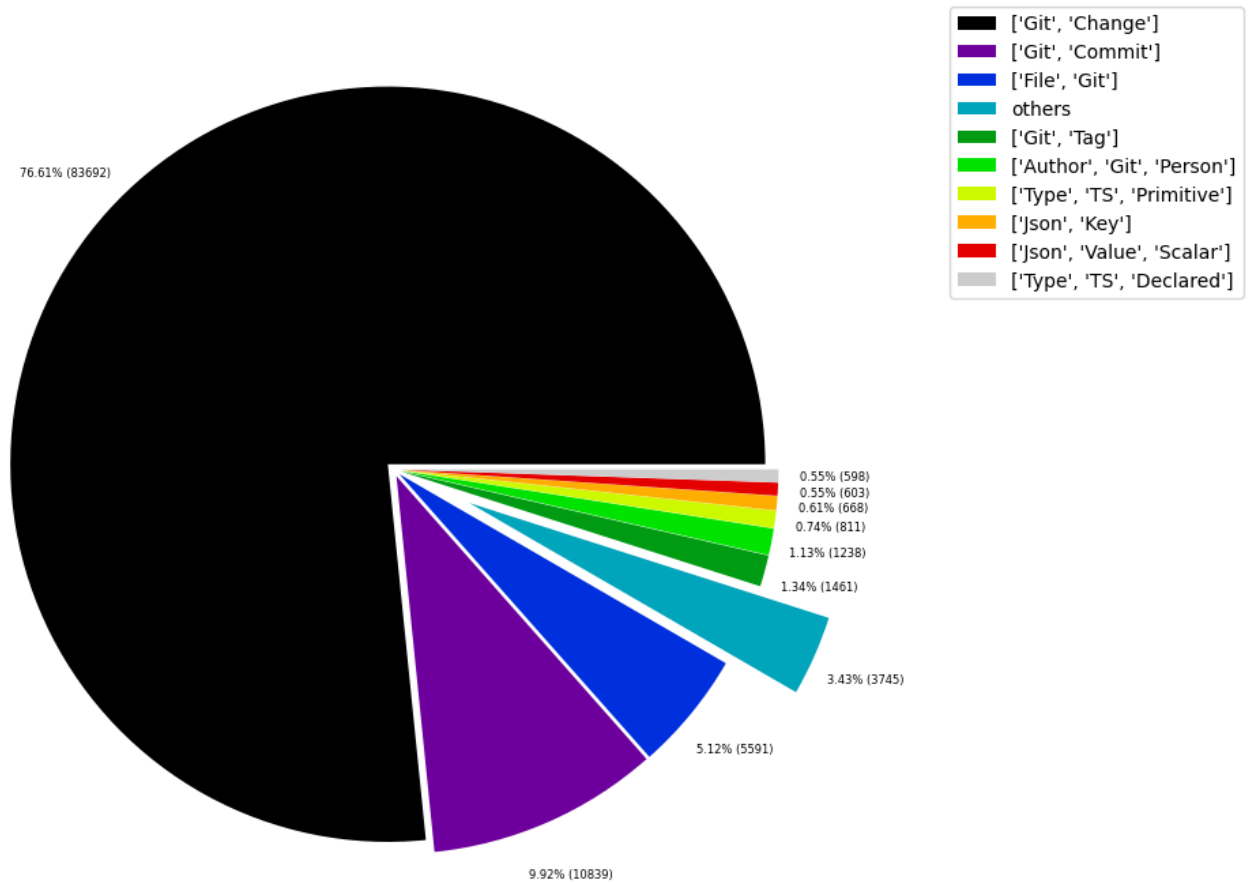- 3.43% (3745)
- 5.12% (5591)
- 9.92% (10839)

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	0.000915
1	[Repository, File, Git]	1	0.000915
2	[Value, TS, Null]	1	0.000915
3	[TS, Constructor]	2	0.001831
4	[TS, Class]	2	0.001831
5	[TS, Enum]	4	0.003661
6	[TS, Method]	4	0.003661
7	[Value, Array, TS]	5	0.004577
8	[Type, TS, Tuple]	6	0.005492
9	[NPM, Engine]	6	0.005492
10	[TS, TypeParameter]	8	0.007323
11	[Value, TS, Complex]	11	0.010069
12	[Type, TS, TypeParameterReference]	12	0.010984
13	[Json, Value, Array]	12	0.010984
14	[Value, TS, Function]	13	0.011900
15	[Value, TS, Call]	14	0.012815
16	[Value, TS, Member]	14	0.012815
17	[TS, EnumMember]	16	0.014646
18	[jQAssistant, Rule, Concept]	19	0.017392
19	[Type, TS, NotIdentified]	23	0.021053
20	[Value, Object, TS]	28	0.025630
21	[File, Local]	28	0.025630
22	[File, TS, Scan]	29	0.026546
23	[Package, File, Json, NPM]	29	0.026546
24	[Value, TS, Declared]	30	0.027461
25	[TS, TypeAlias]	32	0.029292
26	[TS, ExternalModule]	33	0.030207
27	[Project, TS]	33	0.030207
28	[Type, TS, Intersection]	34	0.031122
29	[File, Directory]	35	0.032038

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

Pie chart values: 12.02% (450), 9.88% (370), 9.03% (338), 8.49% (318), 7.32% (274), 6.57% (246), 3.66% (137), 3.55% (133), 3.31% (124), 2.91% (109), 2.91% (109), 2.43% (91), 2.35% (88), 2.14% (80), 2.03% (76), 1.87% (70), 1.71% (64), 1.58% (59), 1.36% (51), 1.23% (46), 1.09% (41), 0.99% (37), 0.93% (35), 0.91% (34), 0.88% (33), 0.88% (33), 0.85% (32), 0.80% (30), 0.77% (29), 0.77% (29), 0.75% (28), 0.75% (28), 0.61% (23), 0.51% (19), 0.43% (16), 0.37% (14), 0.37% (14), 0.35% (13), 0.35% (13), 0.32% (12)
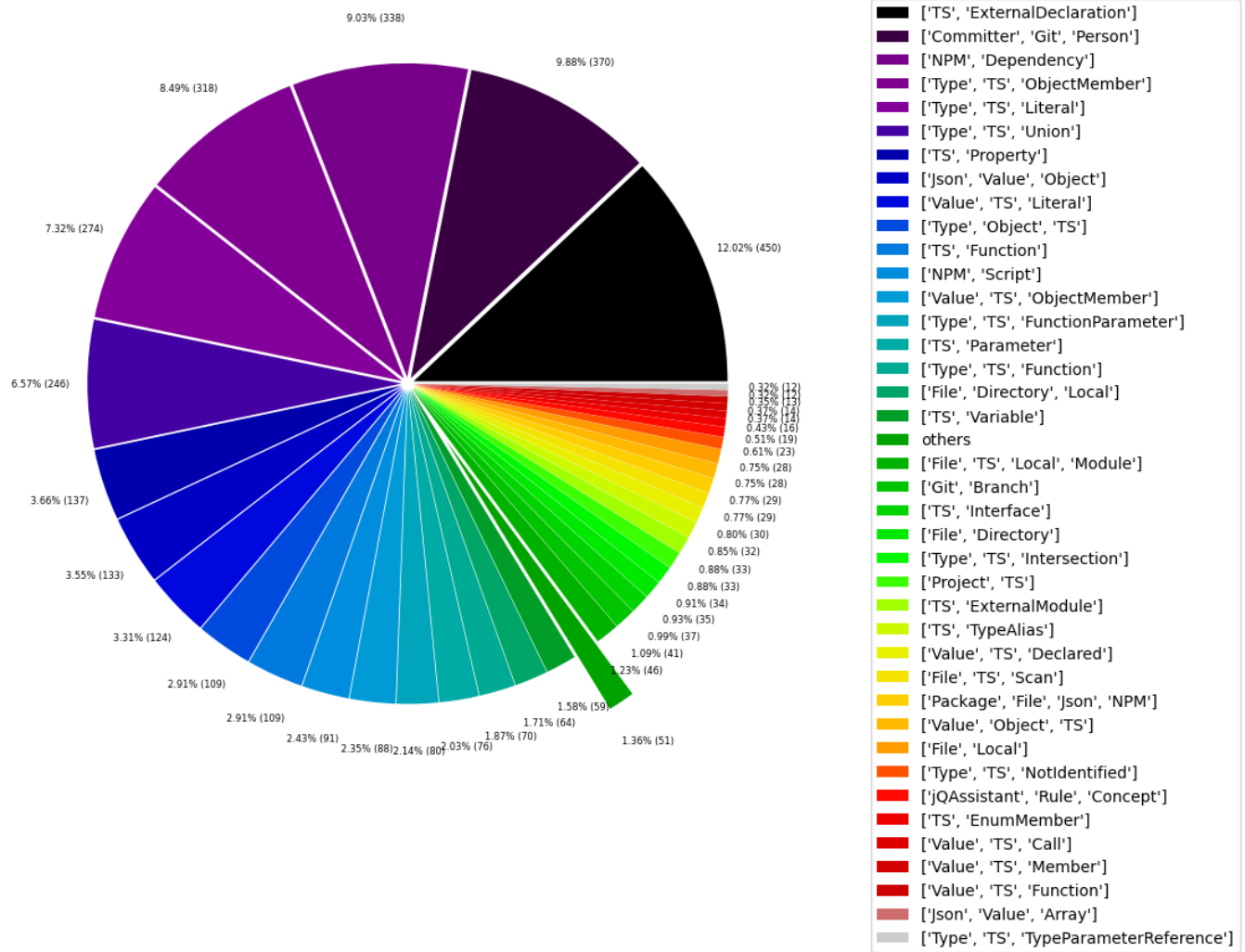
Table 1c - Highest node count by single label

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	103233	94.495908
1	Change	83692	76.608755
2	Commit	10839	9.921645
3	File	5823	5.330172
4	TS	3986	3.648646
5	Type	2581	2.362558
6	Person	1608	1.471907
7	Tag	1461	1.337349
8	Json	1445	1.322703
9	Author	1238	1.133222
10	Value	1076	0.984933
11	Primitive	811	0.742361
12	Key	668	0.611464
13	Declared	628	0.574849
14	Scalar	603	0.551965
15	NPM	464	0.424730
16	ExternalDeclaration	450	0.411914
17	ObjectMember	406	0.371638
18	Literal	398	0.364315
19	Committer	370	0.338685
20	Dependency	338	0.309393
21	Object	270	0.247149
22	Union	246	0.225180
23	Function	192	0.175750
24	Local	138	0.126320
25	Property	137	0.125405
26	Directory	99	0.090621
27	Script	91	0.083298
28	FunctionParameter	80	0.073229
29	Parameter	76	0.069568
30	Variable	59	0.054007
31	Module	46	0.042107
32	Branch	41	0.037530
33	Interface	37	0.033869
34	Intersection	34	0.031122
35	ExternalModule	33	0.030207
36	Project	33	0.030207
37	TypeAlias	32	0.029292
38	Package	29	0.026546
39	Scan	29	0.026546

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
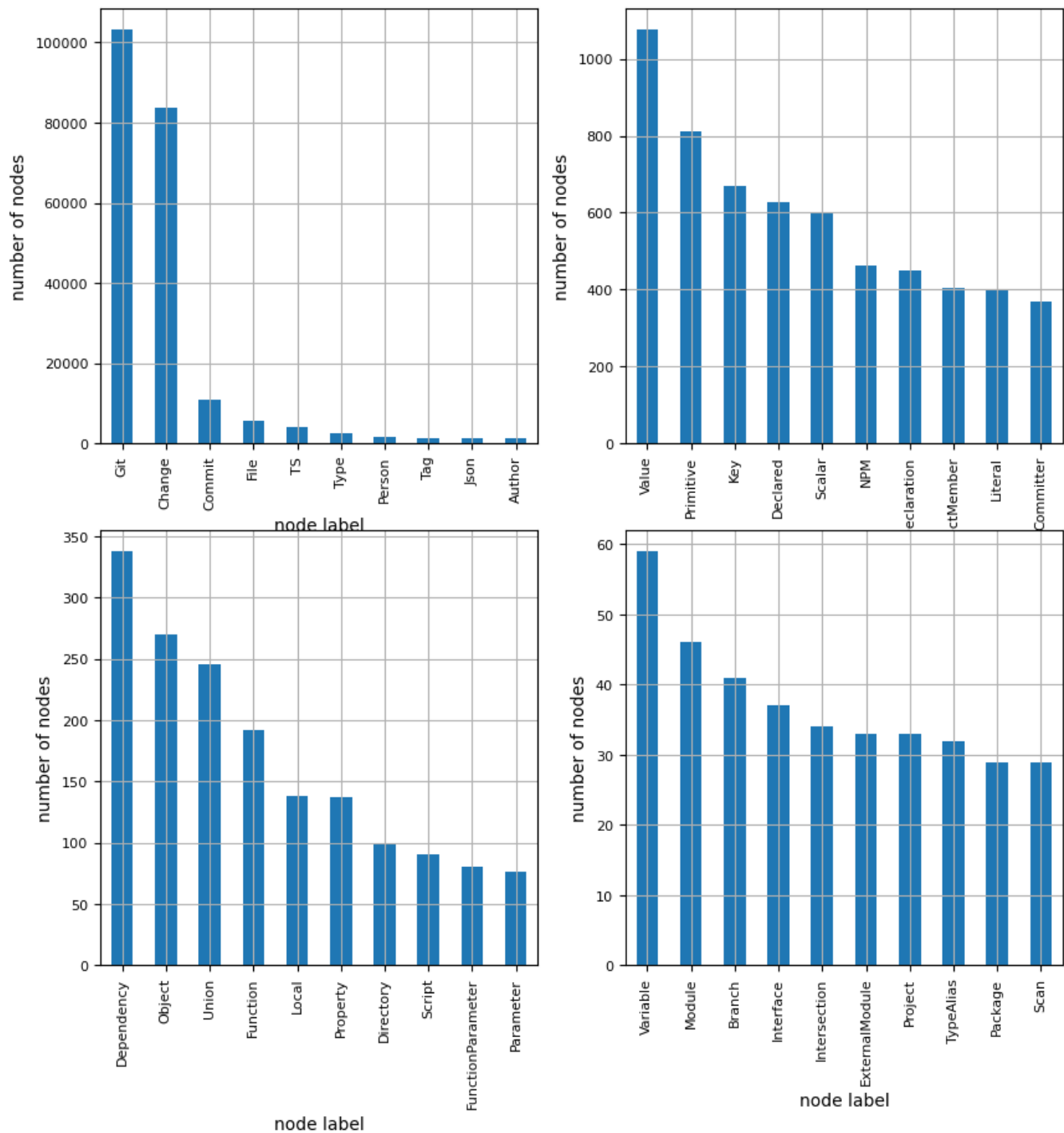
Relationship Types

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: 323039
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	83692	25.907708
1	MODIFIES	83692	25.907708
2	UPDATES	54949	17.010020
3	COMMITTED	21678	6.710645
4	CREATES	19972	6.182535
5	DELETES	12041	3.727414
6	HAS_PARENT	11896	3.682527
7	HAS_COMMIT	10839	3.355322
8	HAS_FILE	5591	1.730751
9	RENAMES	3270	1.012262
10	DEPENDS_ON	1845	0.571138
11	HAS_NEW_NAME	1751	0.542040
12	HAS_TAG	1461	0.452267
13	ON_COMMIT	1461	0.452267
14	HAS_AUTHOR	1238	0.383235
15	CONTAINS	1199	0.371163
16	OF_TYPE	1030	0.318847
17	HAS_KEY	668	0.206786
18	HAS_VALUE	668	0.206786
19	EXPORTS	659	0.204000
20	REFERENCES	489	0.151375
21	DECLARES	410	0.126920
22	HAS_MEMBER	406	0.125681
23	HAS_COMMITTER	370	0.114537
24	HAS_TYPE_ARGUMENT	202	0.062531
25	RETURNS	183	0.056650
26	DECLARES_DEV_DEPENDENCY	169	0.052316
27	DECLARES_DEPENDENCY	161	0.049839
28	HAS_PARAMETER	155	0.047982
29	RESOLVES_TO	103	0.031885

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>
```

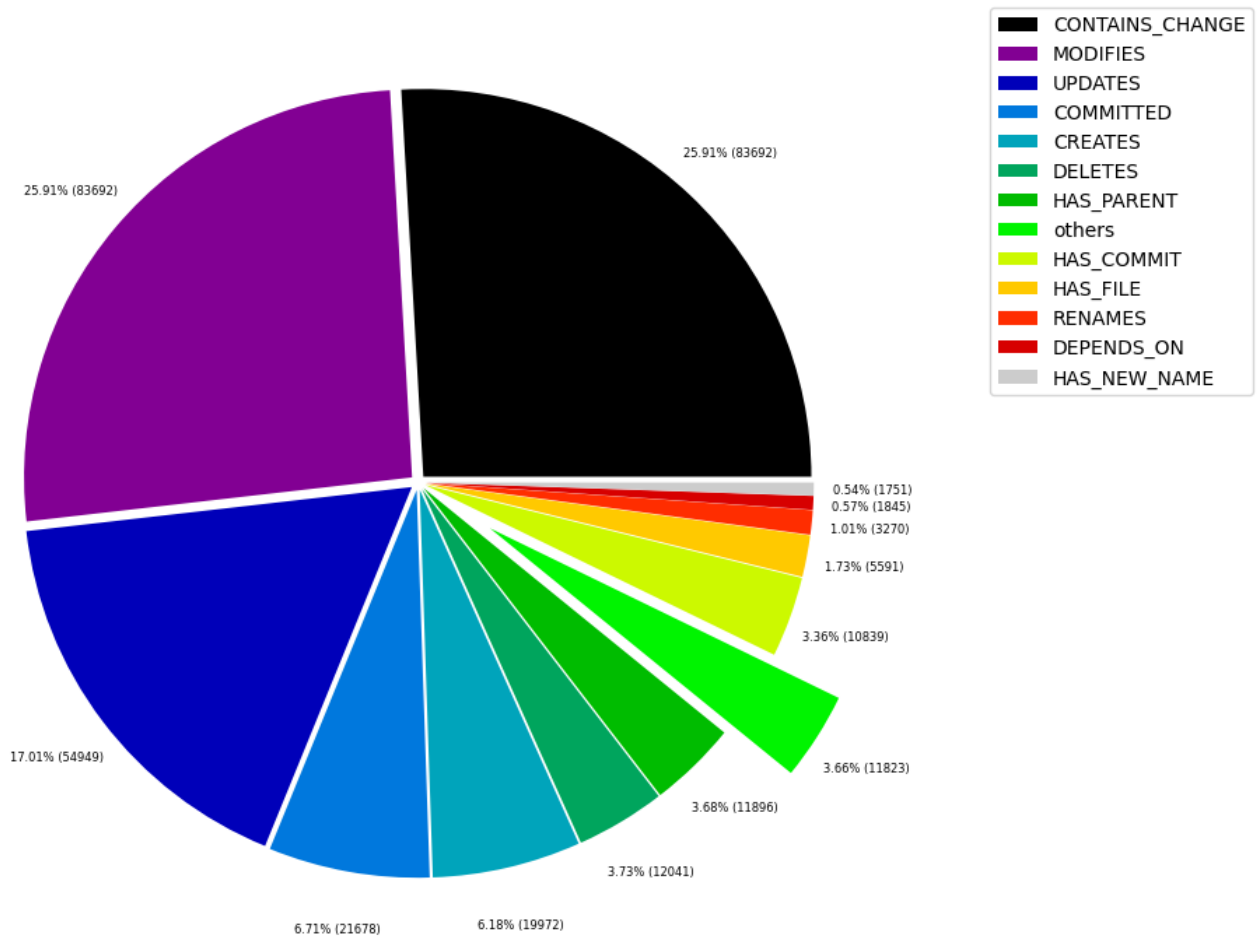Relationship types (more than 0.5% overall)

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

25.91% (83692)
25.91% (83692)
17.01% (54949)
6.71% (21678)
6.18% (19972)
3.73% (12041)
3.68% (11896)
3.66% (11823)
3.36% (10839)
1.73% (5591)
1.01% (3270)
0.57% (1845)
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.
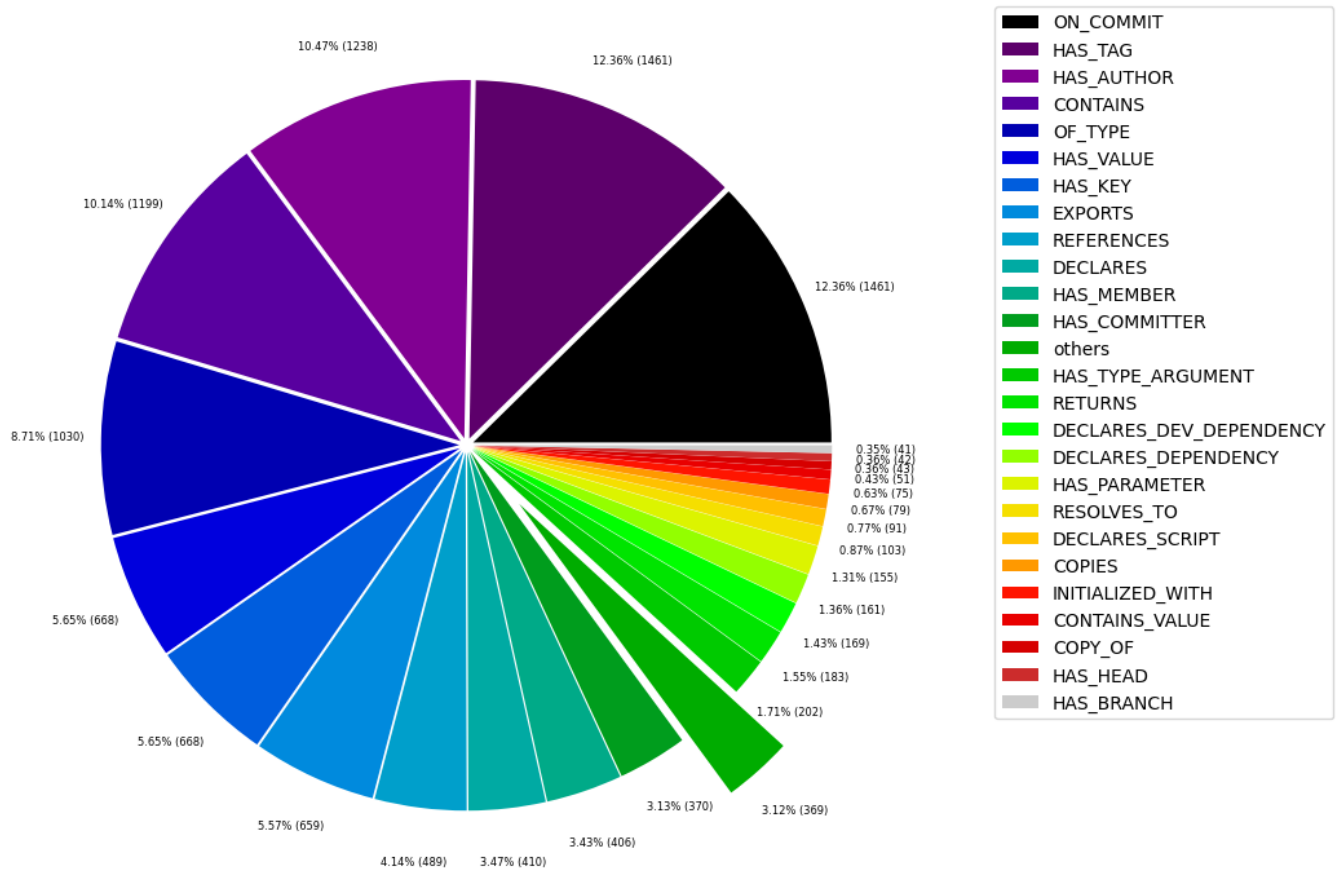
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS	1	0.000310
1	REFERENCED_PROJECTS	5	0.001548
2	DECLARES_ENGINE	6	0.001857
3	SIMILAR	8	0.002476
4	DECLARES_PEER_DEPENDENCY	8	0.002476
5	CONSTRAINED_BY	8	0.002476
6	EXTENDS	12	0.003715
7	PARENT	14	0.004334
8	MEMBER	14	0.004334
9	HAS_ARGUMENT	14	0.004334
10	CALLS	14	0.004334
11	INCLUDES_CONCEPT	19	0.005882
12	PROVIDED_BY_NPM_DEPENDENCY	20	0.006191
13	REQUIRES_CONCEPT	28	0.008668
14	CONTAINS_PROJECT	33	0.010215
15	HAS_CONFIG	33	0.010215
16	IS_DESCRIBED_IN_NPM_PACKAGE	33	0.010215
17	HAS_ROOT	33	0.010215
18	HAS_NPM_PACKAGE	33	0.010215
19	USES	33	0.010215
20	HAS_BRANCH	41	0.012692
21	HAS_HEAD	42	0.013002
22	COPY_OF	43	0.013311
23	CONTAINS_VALUE	51	0.015788
24	INITIALIZED_WITH	75	0.023217
25	COPIES	79	0.024455
26	DECLARES_SCRIPT	91	0.028170
27	RESOLVES_TO	103	0.031885
28	HAS_PARAMETER	155	0.047982
29	DECLARES_DEPENDENCY	161	0.049839

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
- CONTAINS
- OF_TYPE
- HAS_VALUE
- HAS_KEY
- EXPORTS
- REFERENCES
- DECLARES
- HAS_MEMBER
- HAS_COMMITTER
- others
- HAS_TYPE_ARGUMENT
- RETURNS
- DECLARES_DEV_DEPENDENCY
- DECLARES_DEPENDENCY
- HAS_PARAMETER
- RESOLVES_TO
- DECLARES_SCRIPT
- COPIES
- INITIALIZED_WITH
- CONTAINS_VALUE
- COPY_OF
- HAS_HEAD
- HAS_BRANCH

Pie chart labels: 12.36% (1461), 10.47% (1238), 10.14% (1199), 8.71% (1030), 5.65% (668), 5.65% (668), 5.57% (659), 4.14% (489), 3.47% (410), 3.43% (406), 3.13% (370), 3.12% (369), 1.71% (202), 1.55% (183), 1.43% (169), 1.36% (161), 1.31% (155), 0.87% (103), 0.77% (91), 0.67% (79), 0.63% (75), 0.43% (51), 0.36% (43), 0.36% (42), 0.35% (41), 12.36% (1461)

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, Commit]	CONTAINS_CHANGE	[Git, Change]	83692	10839	
1	[Git, Change]	MODIFIES	[File, Git]	83692	83692	
2	[Git, Change]	UPDATES	[File, Git]	54949	83692	
3	[Git, Change]	CREATES	[File, Git]	19972	83692	
4	[Git, Change]	DELETES	[File, Git]	12041	83692	
5	[Git, Commit]	HAS_PARENT	[Git, Commit]	11896	10839	
6	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	10839	1	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	10839	1238	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10839	370	
9	[Repository, File, Git]	HAS_FILE	[File, Git]	5591	1	
10	[Git, Change]	RENAMES	[File, Git]	3270	83692	
11	[File, Git]	HAS_NEW_NAME	[File, Git]	1751	5591	
12	[Repository, File, Git]	HAS_TAG	[Git, Tag]	1461	1	
13	[Git, Tag]	ON_COMMIT	[Git, Commit]	1461	1461	
14	[Repository, File, Git]	HAS_AUTHOR	[Author, Git, Person]	1238	1	
15	[Json, Value, Object]	HAS_KEY	[Json, Key]	668	133	
16	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	588	109	
17	[Json, Key]	HAS_VALUE	[Json, Value, Scalar]	552	668	
18	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	450	33	
19	[Repository, File, Git]	HAS_COMMITTER	[Committer, Git, Person]	370	1	
20	[Type, Object, TS]	HAS_MEMBER	[Type, TS, ObjectMember]	318	109	
21	[File, TS, Local, Module, Mark4ModuleWeaklyCon...	DEPENDS_ON	[TS, ExternalDeclaration]	312	1	
22	[Type, TS, Union]	CONTAINS	[Type, TS, Primitive]	303	246	
23	[Type, TS, Declared]	REFERENCES	[TS, ExternalDeclaration]	288	598	
24	[Type, TS, Union]	CONTAINS	[Type, TS, Literal]	238	246	
25	[Type, TS, ObjectMember]	OF_TYPE	[Type, TS, Primitive]	173	318	
26	[Package, File, Json, NPM]	DECLARES_DEV_DEPENDENCY	[NPM, Dependency]	169	29	
27	[Package, File, Json, NPM]	DECLARES_DEPENDENCY	[NPM, Dependency]	161	29	
28	[TS, Function]	DEPENDS_ON	[TS, ExternalModule]	148	109	
29	[Type, TS, Union]	CONTAINS	[Type, TS, Declared]	145	246	

Graph Density

```
total_number_of_nodes (vertices): 109246
total_number_of_relationships (edges): 323039
-> total directed graph density: 2.7067481198271015e-05
-> total directed graph density in percent: 0.0027067481198271015
```