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]	83727	76.605731
1	[Git, Commit]	10855	9.931745
2	[File, Git]	5591	5.115466
3	[Git, Tag]	1459	1.334907
4	[Author, Git, Person]	1238	1.132704
5	[Type, TS, Primitive]	811	0.742022
6	[Json, Key]	668	0.611184
7	[Json, Value, Scalar]	603	0.551713
8	[Type, TS, Declared]	598	0.547138
9	[TS, ExternalDeclaration]	450	0.411726
10	[Committer, Git, Person]	370	0.338530
11	[NPM, Dependency]	338	0.309252
12	[Type, TS, ObjectMember]	318	0.290953
13	[Type, TS, Literal]	274	0.250695
14	[Type, TS, Union]	246	0.225077
15	[TS, Property]	137	0.125348
16	[Json, Value, Object]	133	0.121688
17	[Value, TS, Literal]	124	0.113453
18	[TS, Function]	109	0.099729
19	[Type, Object, TS]	109	0.099729
20	[NPM, Script]	91	0.083260
21	[Value, TS, ObjectMember]	88	0.080515
22	[Type, TS, FunctionParameter]	80	0.073196
23	[TS, Parameter]	76	0.069536
24	[Type, TS, Function]	70	0.064046
25	[File, Directory, Local]	64	0.058557
26	[TS, Variable]	59	0.053982
27	[File, TS, Local, Module]	46	0.042088
28	[Git, Branch]	42	0.038428
29	[TS, Interface]	37	0.033853

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']

76.61% (83727)

0.55% (598)
0.55% (603)
0.61% (668)
0.74% (811)
1.13% (1238)
1.33% (1459)
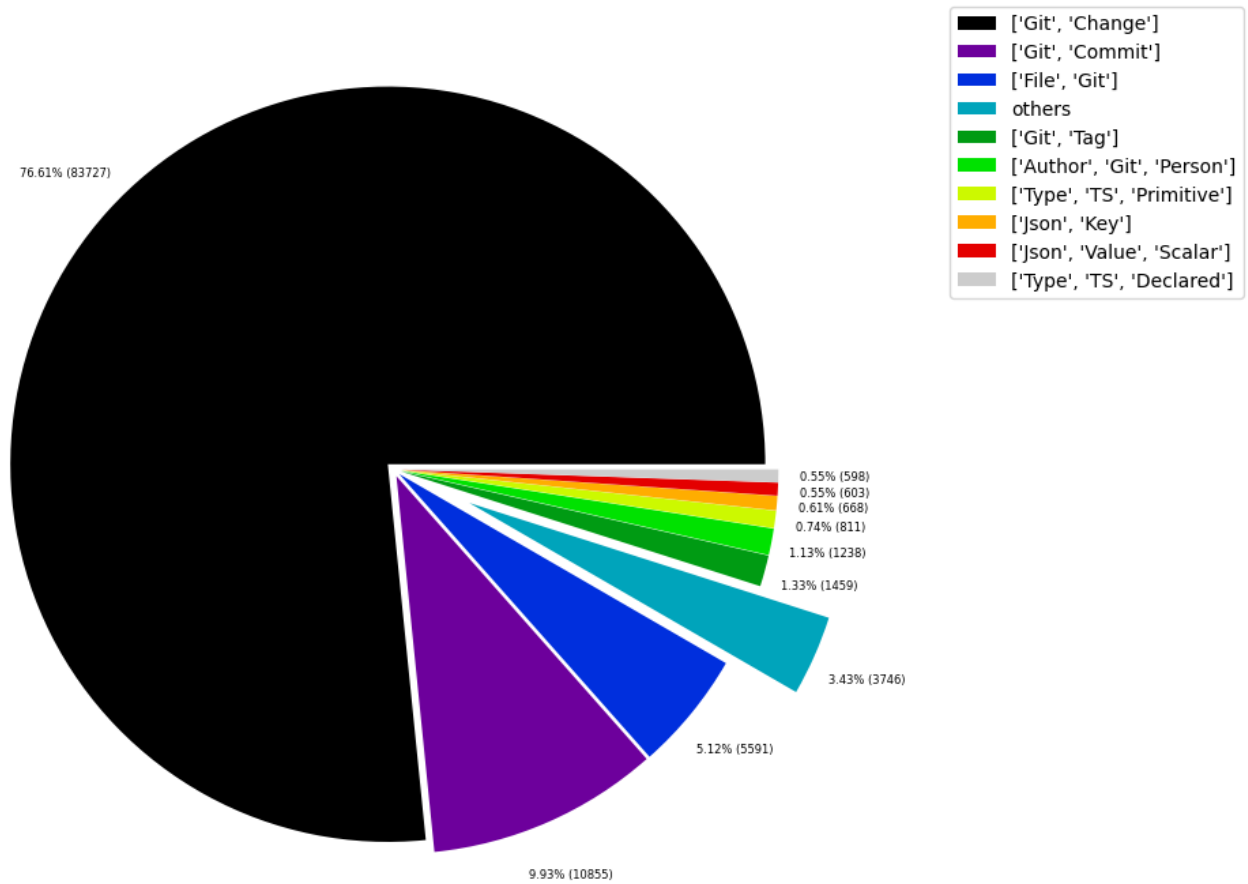3.43% (3746)
5.12% (5591)
9.93% (10855)

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	0.001830
4	[TS, Class]	2	0.001830
5	[TS, Enum]	4	0.003660
6	[TS, Method]	4	0.003660
7	[Value, Array, TS]	5	0.004575
8	[Type, TS, Tuple]	6	0.005490
9	[NPM, Engine]	6	0.005490
10	[TS, TypeParameter]	8	0.007320
11	[Value, TS, Complex]	11	0.010064
12	[Type, TS, TypeParameterReference]	12	0.010979
13	[Json, Value, Array]	12	0.010979
14	[Value, TS, Function]	13	0.011894
15	[Value, TS, Call]	14	0.012809
16	[Value, TS, Member]	14	0.012809
17	[TS, EnumMember]	16	0.014639
18	[jQAssistant, Rule, Concept]	19	0.017384
19	[Type, TS, NotIdentified]	23	0.021044
20	[Value, Object, TS]	28	0.025619
21	[File, Local]	28	0.025619
22	[File, TS, Scan]	29	0.026533
23	[Package, File, Json, NPM]	29	0.026533
24	[Value, TS, Declared]	30	0.027448
25	[TS, TypeAlias]	32	0.029278
26	[TS, ExternalModule]	33	0.030193
27	[Project, TS]	33	0.030193
28	[Type, TS, Intersection]	34	0.031108
29	[File, Directory]	35	0.032023

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']
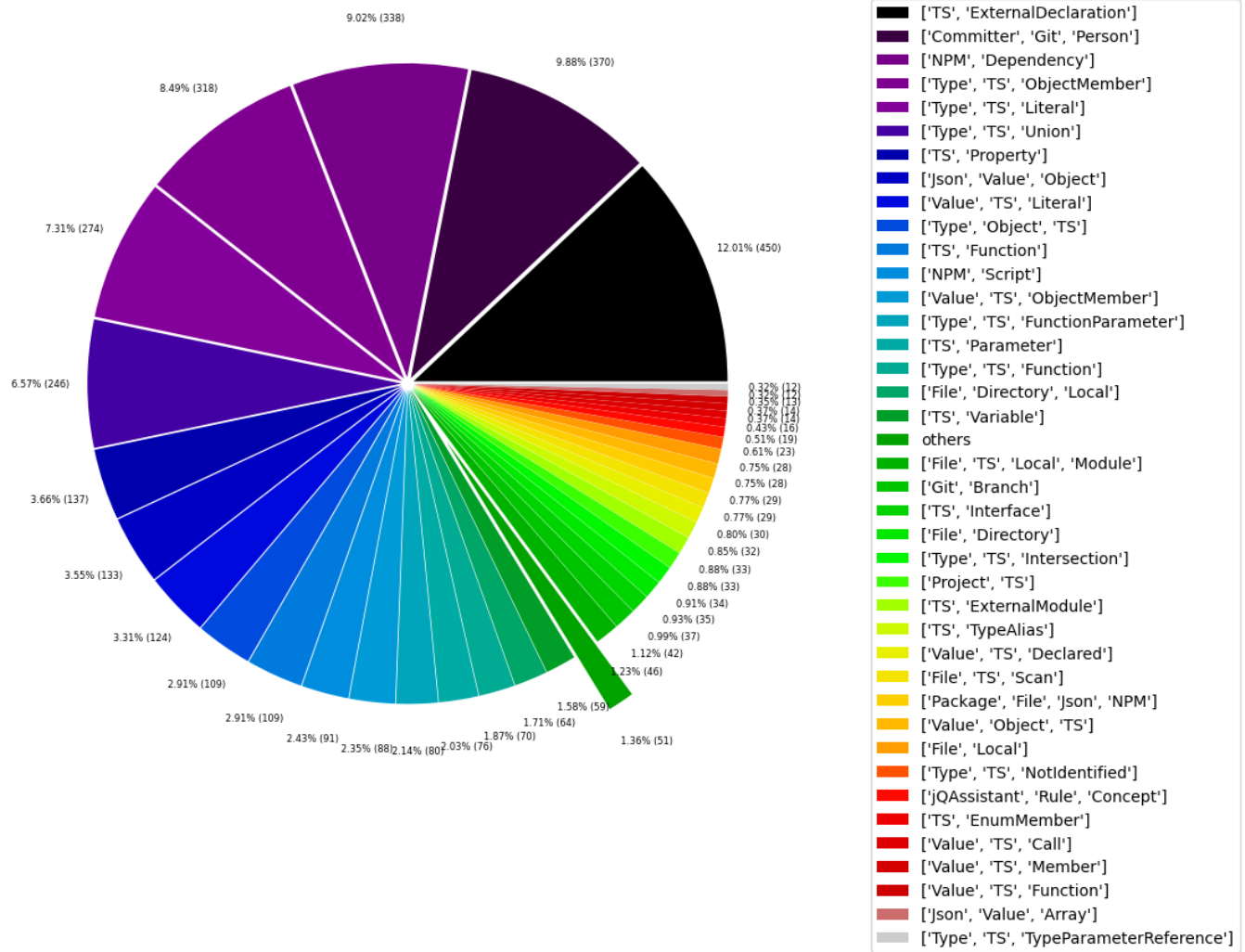- ['Type', 'TS', 'TypeParameterReference']

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	103283	94.498426
1	Change	83727	76.605731
2	Commit	10855	9.931745
3	File	5823	5.327734
4	TS	3986	3.646977
5	Type	2581	2.361477
6	Person	1608	1.471234
7	Tag	1459	1.334907
8	Json	1445	1.322098
9	Author	1238	1.132704
10	Value	1076	0.984483
11	Primitive	811	0.742022
12	Key	668	0.611184
13	Declared	628	0.574586
14	Scalar	603	0.551713
15	NPM	464	0.424535
16	ExternalDeclaration	450	0.411726
17	ObjectMember	406	0.371468
18	Literal	398	0.364149
19	Committer	370	0.338530
20	Dependency	338	0.309252
21	Object	270	0.247036
22	Union	246	0.225077
23	Function	192	0.175670
24	Local	138	0.126263
25	Property	137	0.125348
26	Directory	99	0.090580
27	Script	91	0.083260
28	FunctionParameter	80	0.073196
29	Parameter	76	0.069536
30	Variable	59	0.053982
31	Module	46	0.042088
32	Branch	42	0.038428
33	Interface	37	0.033853
34	Intersection	34	0.031108
35	ExternalModule	33	0.030193
36	Project	33	0.030193
37	TypeAlias	32	0.029278
38	Package	29	0.026533
39	Scan	29	0.026533

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
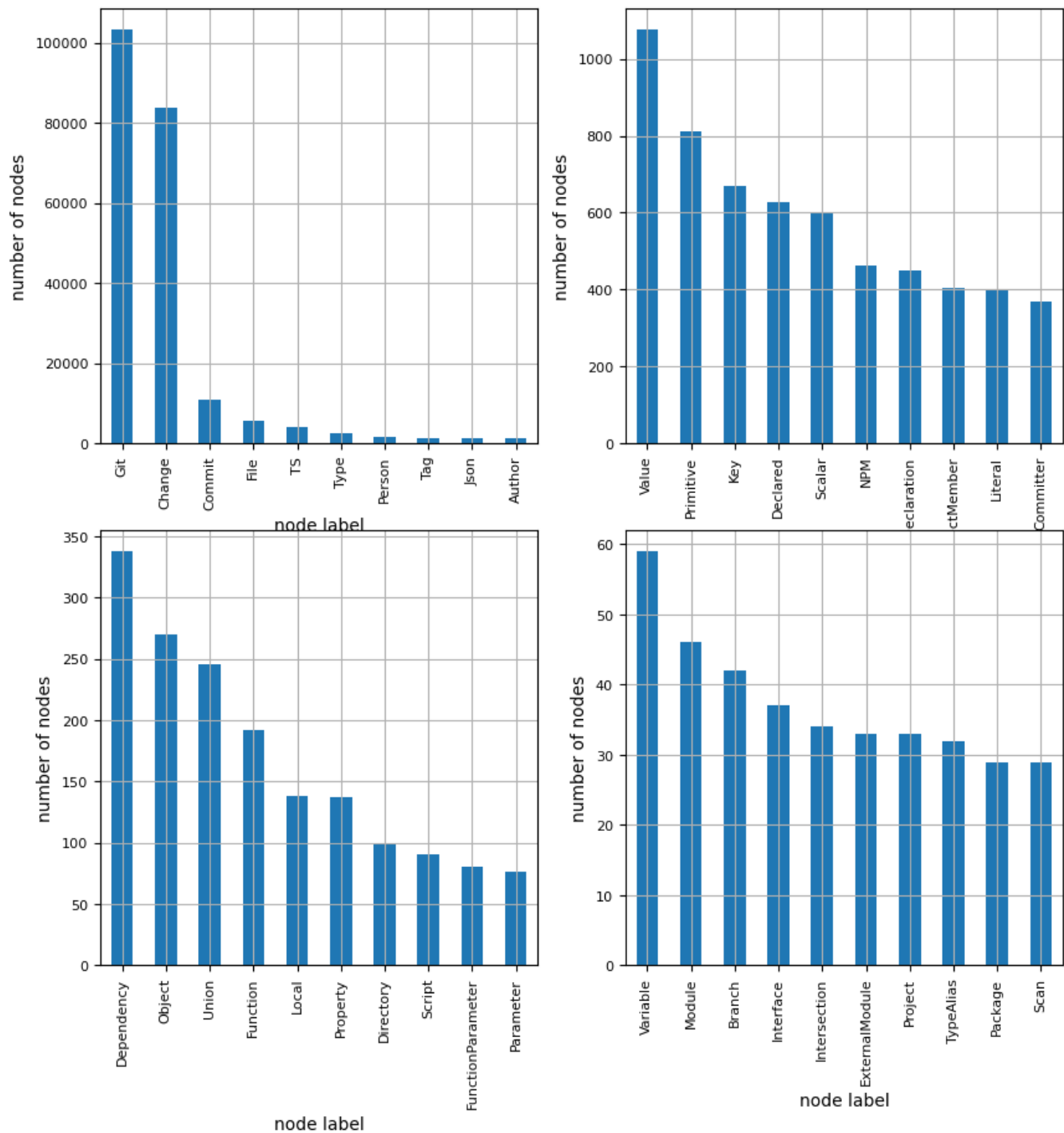
Relationship Types

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: 323206
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	83727	25.905150
1	MODIFIES	83727	25.905150
2	UPDATES	54984	17.012060
3	COMMITTED	21710	6.717078
4	CREATES	19972	6.179341
5	DELETES	12041	3.725488
6	HAS_PARENT	11912	3.685575
7	HAS_COMMIT	10855	3.358539
8	HAS_FILE	5591	1.729857
9	RENAMES	3270	1.011739
10	DEPENDS_ON	1845	0.570843
11	HAS_NEW_NAME	1751	0.541760
12	HAS_TAG	1459	0.451415
13	ON_COMMIT	1459	0.451415
14	HAS_AUTHOR	1238	0.383037
15	CONTAINS	1199	0.370971
16	OF_TYPE	1030	0.318682
17	HAS_KEY	668	0.206679
18	HAS_VALUE	668	0.206679
19	EXPORTS	659	0.203895
20	REFERENCES	489	0.151297
21	DECLARES	410	0.126854
22	HAS_MEMBER	406	0.125616
23	HAS_COMMITTER	370	0.114478
24	HAS_TYPE_ARGUMENT	202	0.062499
25	RETURNS	183	0.056620
26	DECLARES_DEV_DEPENDENCY	169	0.052289
27	DECLARES_DEPENDENCY	161	0.049813
28	HAS_PARAMETER	155	0.047957
29	RESOLVES_TO	103	0.031868

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

Slice labels:
- 25.91% (83727)
- 25.91% (83727)
- 17.01% (54984)
- 6.72% (21710)
- 6.18% (19972)
- 3.73% (12041)
- 3.69% (11912)
- 3.66% (11821)
- 3.36% (10855)
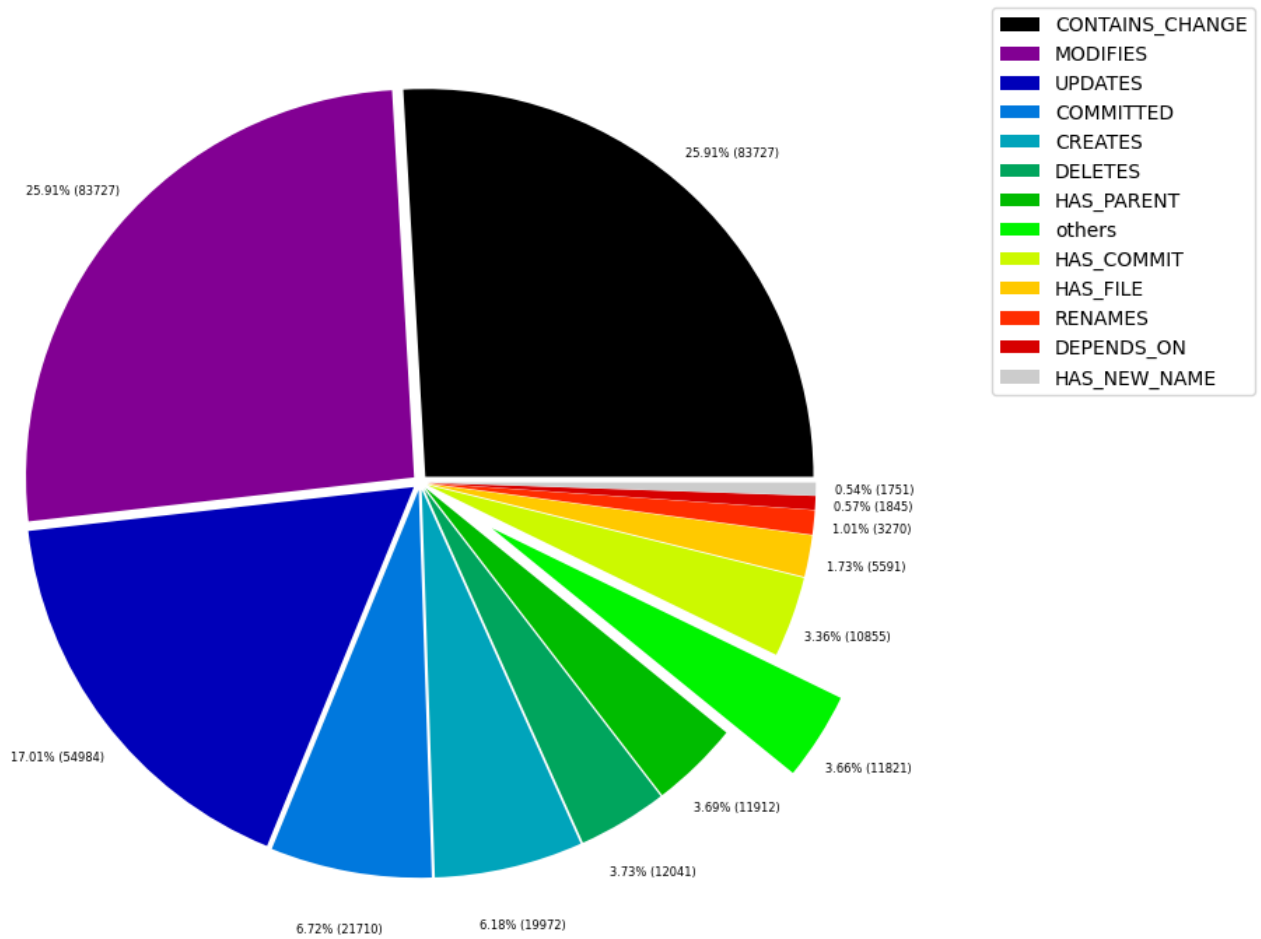- 1.73% (5591)
- 1.01% (3270)
- 0.57% (1845)
- 0.54% (1751)

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.
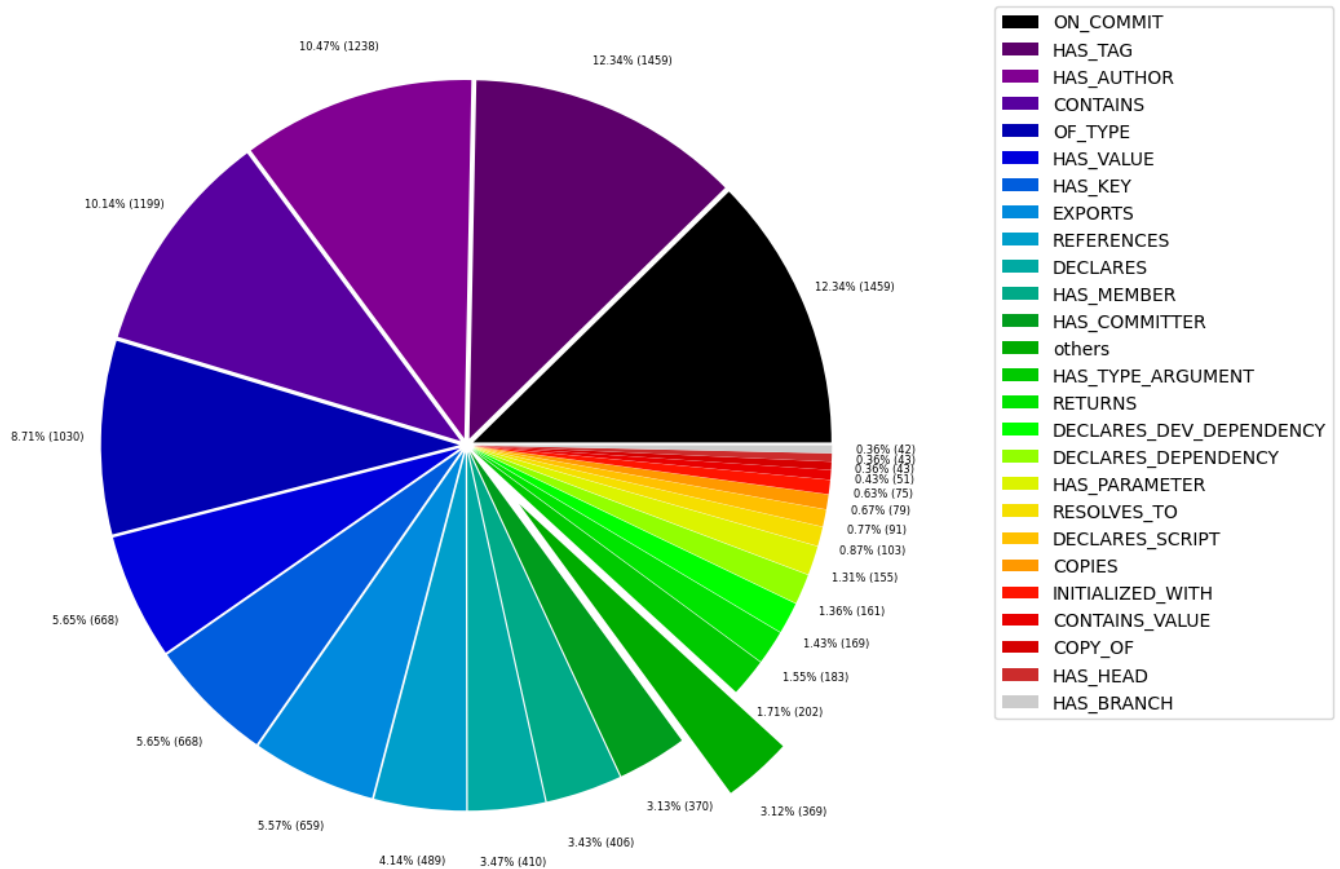
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS	1	0.000309
1	REFERENCED_PROJECTS	5	0.001547
2	DECLARES_ENGINE	6	0.001856
3	SIMILAR	8	0.002475
4	DECLARES_PEER_DEPENDENCY	8	0.002475
5	CONSTRAINED_BY	8	0.002475
6	EXTENDS	12	0.003713
7	PARENT	14	0.004332
8	MEMBER	14	0.004332
9	HAS_ARGUMENT	14	0.004332
10	CALLS	14	0.004332
11	INCLUDES_CONCEPT	19	0.005879
12	PROVIDED_BY_NPM_DEPENDENCY	20	0.006188
13	REQUIRES_CONCEPT	28	0.008663
14	CONTAINS_PROJECT	33	0.010210
15	HAS_CONFIG	33	0.010210
16	IS_DESCRIBED_IN_NPM_PACKAGE	33	0.010210
17	HAS_ROOT	33	0.010210
18	HAS_NPM_PACKAGE	33	0.010210
19	USES	33	0.010210
20	HAS_BRANCH	42	0.012995
21	HAS_HEAD	43	0.013304
22	COPY_OF	43	0.013304
23	CONTAINS_VALUE	51	0.015779
24	INITIALIZED_WITH	75	0.023205
25	COPIES	79	0.024443
26	DECLARES_SCRIPT	91	0.028155
27	RESOLVES_TO	103	0.031868
28	HAS_PARAMETER	155	0.047957
29	DECLARES_DEPENDENCY	161	0.049813

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 values:
- 12.34% (1459)
- 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% (43)
- 0.36% (42)
- 12.34% (1459)

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]	83727	10855	
1	[Git, Change]	MODIFIES	[File, Git]	83727	83727	
2	[Git, Change]	UPDATES	[File, Git]	54984	83727	
3	[Git, Change]	CREATES	[File, Git]	19972	83727	
4	[Git, Change]	DELETES	[File, Git]	12041	83727	
5	[Git, Commit]	HAS_PARENT	[Git, Commit]	11912	10855	
6	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	10855	1	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	10855	1238	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10855	370	
9	[Repository, File, Git]	HAS_FILE	[File, Git]	5591	1	
10	[Git, Change]	RENAMES	[File, Git]	3270	83727	
11	[File, Git]	HAS_NEW_NAME	[File, Git]	1751	5591	
12	[Repository, File, Git]	HAS_TAG	[Git, Tag]	1459	1	
13	[Git, Tag]	ON_COMMIT	[Git, Commit]	1459	1459	
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): 109296
total_number_of_relationships (edges): 323206
-> total directed graph density: 2.7056701603251926e-05
-> total directed graph density in percent: 0.0027056701603251927
```