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`.

```
Total number of nodes: 96325
```

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	74973	77.833377
1	[Git, Commit]	10021	10.403322
2	[File, Git]	5135	5.330911
3	[Author, Git, Person]	1183	1.228134
4	[Git, Tag]	1084	1.125357
5	[Json, Key]	668	0.693486
6	[Json, Value, Scalar]	603	0.626006
7	[Committer, Git, Person]	371	0.385154
8	[NPM, Dependency]	330	0.342590
9	[Type, TS, Primitive, ExternalType]	285	0.295873
10	[Type, TS, Declared, ExternalType]	272	0.282377
11	[TS, ExternalDeclaration]	215	0.223203
12	[Type, TS, Literal, ExternalType]	136	0.141189
13	[Json, Value, Object]	133	0.138074
14	[Type, TS, Union, ExternalType]	117	0.121464
15	[Type, TS, ObjectMember, ExternalType]	98	0.101739
16	[NPM, Script]	91	0.094472
17	[TS, Property]	65	0.067480
18	[TS, Function]	47	0.048793
19	[Type, Object, TS, ExternalType]	38	0.039450
20	[Type, TS, FunctionParameter, ExternalType]	37	0.038412
21	[File, Directory]	34	0.035297
22	[TS, Parameter]	33	0.034259
23	[Type, TS, Function, ExternalType]	32	0.033221
24	[Package, File, Json, NPM]	29	0.030106
25	[Git, Branch]	29	0.030106
26	[TS, ExternalModule]	25	0.025954
27	[TS, Variable]	24	0.024916
28	[Value, TS, Literal]	20	0.020763
29	[jQAssistant, Rule, Concept]	19	0.019725

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
- ['Author', 'Git', 'Person']
- ['Git', 'Tag']
- ['Json', 'Key']
- ['Json', 'Value', 'Scalar']

77.83% (74973)
0.63% (603)
0.69% (668)
1.13% (1084)
1.23% (1183)
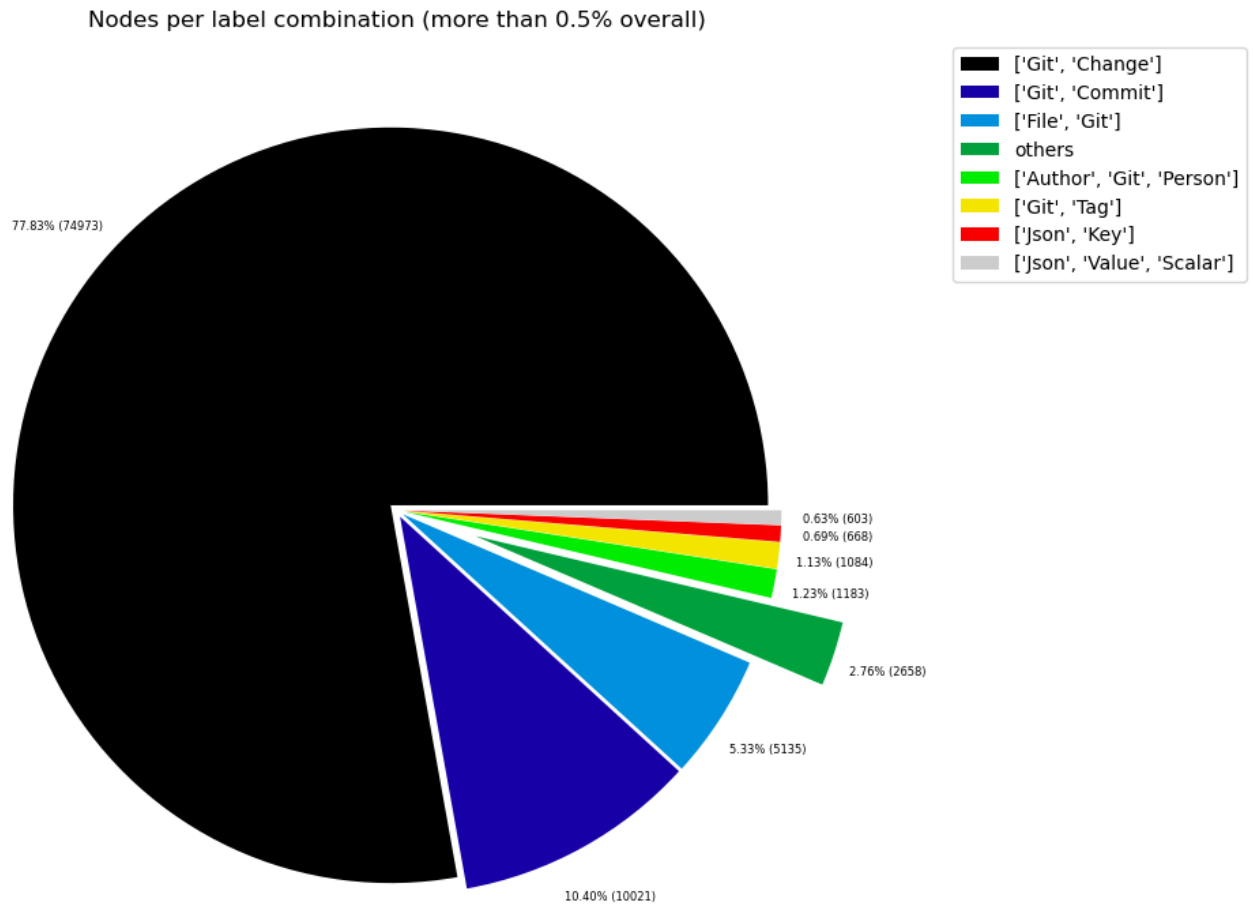2.76% (2658)
5.33% (5135)
10.40% (10021)

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	0.001038
1	[File, TS, Scan]	1	0.001038
2	[TS, Method]	1	0.001038
3	[Value, TS, ObjectMember]	1	0.001038
4	[TS, Constructor]	1	0.001038
5	[TS, Class]	1	0.001038
6	[TS, Enum]	2	0.002076
7	[Value, Object, TS]	3	0.003114
8	[Type, TS, Tuple, ExternalType]	3	0.003114
9	[Value, TS, Function]	4	0.004153
10	[TS, TypeParameter]	4	0.004153
11	[Value, TS, Complex]	5	0.005191
12	[NPM, Engine]	6	0.006229
13	[Project, TS]	6	0.006229
14	[File, Local]	6	0.006229
15	[Value, TS, Call]	6	0.006229
16	[Value, TS, Member]	6	0.006229
17	[File, TS, Local, Module]	6	0.006229
18	[Type, TS, TypeParameterReference, ExternalType]	6	0.006229
19	[TS, EnumMember]	8	0.008305
20	[Type, TS, NotIdentified, ExternalType]	11	0.011420
21	[Json, Value, Array]	12	0.012458
22	[Value, TS, Declared]	13	0.013496
23	[TS, TypeAlias]	14	0.014534
24	[File, Directory, Local]	16	0.016610
25	[Type, TS, Intersection, ExternalType]	17	0.017649
26	[TS, Interface]	18	0.018687
27	[jQAssistant, Rule, Concept]	19	0.019725
28	[Value, TS, Literal]	20	0.020763
29	[TS, Variable]	24	0.024916

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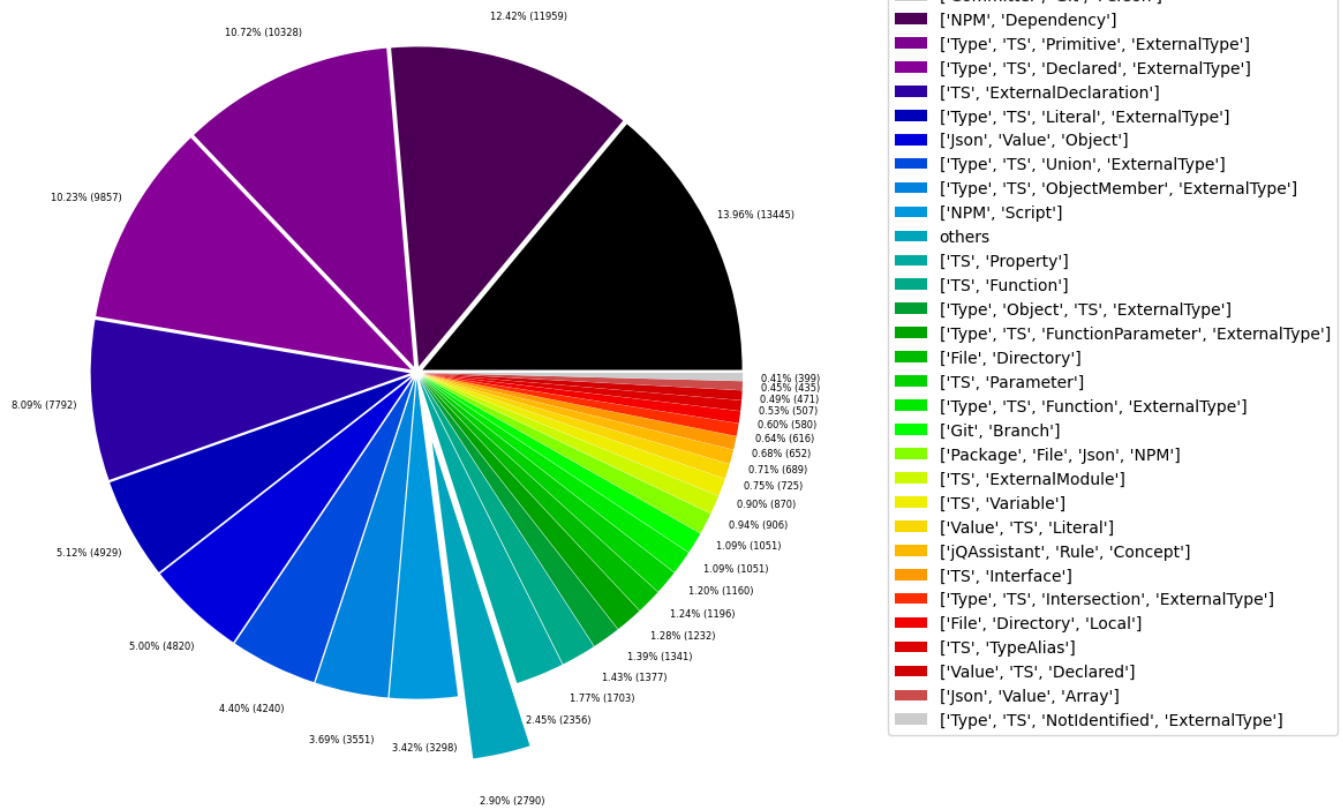- ['Type', 'TS', 'NotIdentified', 'ExternalType']

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.
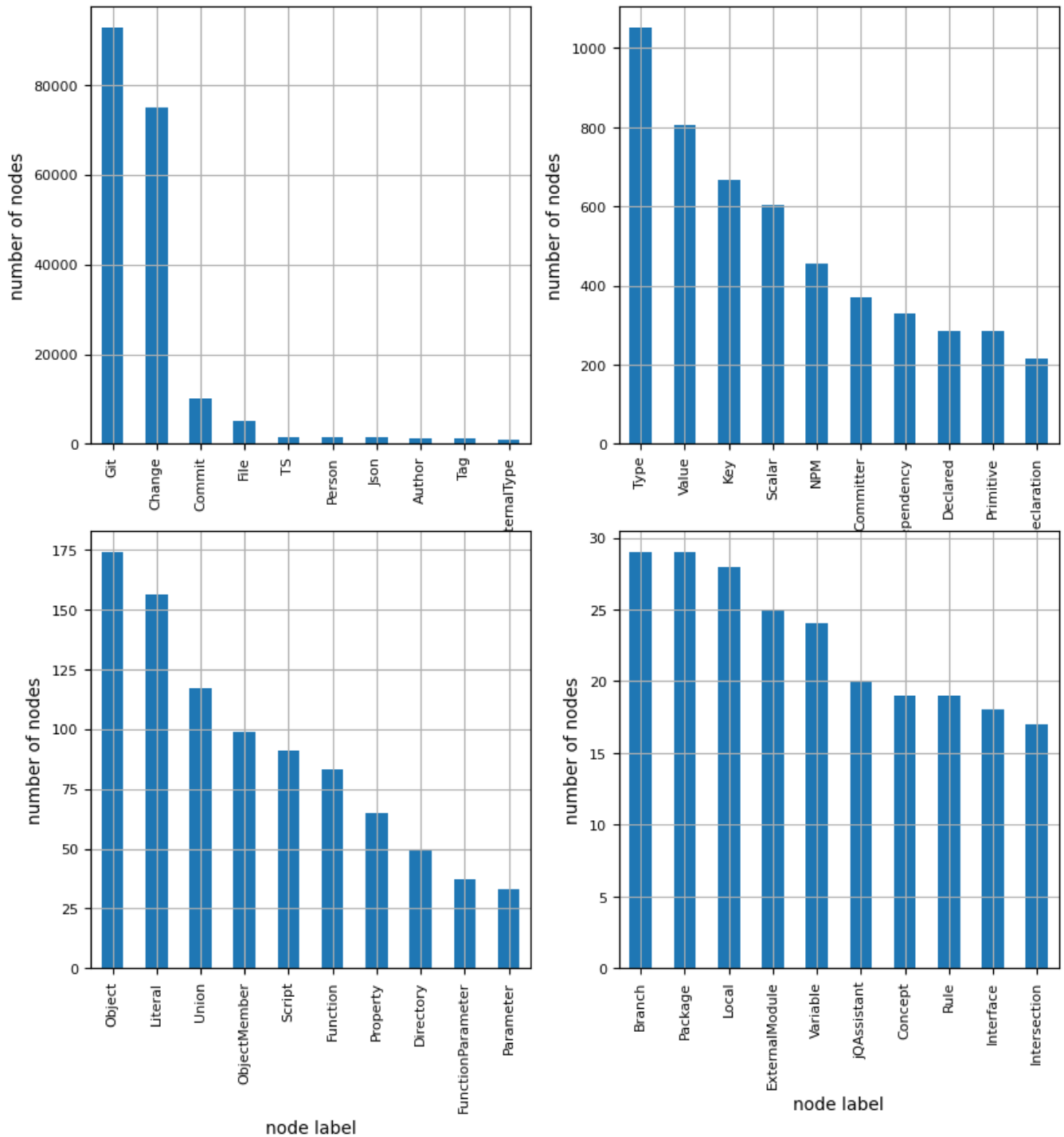
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	92796	96.336361
1	Change	74973	77.833377
2	Commit	10021	10.403322
3	File	5227	5.426421
4	TS	1581	1.641318
5	Person	1554	1.613288
6	Json	1445	1.500130
7	Author	1183	1.228134
8	Tag	1084	1.125357
9	ExternalType	1052	1.092136
10	Type	1052	1.092136
11	Value	806	0.836751
12	Key	668	0.693486
13	Scalar	603	0.626006
14	NPM	456	0.473397
15	Committer	371	0.385154
16	Dependency	330	0.342590
17	Declared	285	0.295873
18	Primitive	285	0.295873
19	ExternalDeclaration	215	0.223203
20	Object	174	0.180638
21	Literal	156	0.161952
22	Union	117	0.121464
23	ObjectMember	99	0.102777
24	Script	91	0.094472
25	Function	83	0.086167
26	Property	65	0.067480
27	Directory	50	0.051908
28	FunctionParameter	37	0.038412
29	Parameter	33	0.034259
30	Branch	29	0.030106
31	Package	29	0.030106
32	Local	28	0.029068
33	ExternalModule	25	0.025954
34	Variable	24	0.024916
35	jQAssistant	20	0.020763
36	Concept	19	0.019725
37	Rule	19	0.019725
38	Interface	18	0.018687
39	Intersection	17	0.017649

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: 269226
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	74973	27.847608
1	MODIFIES	74973	27.847608
2	UPDATES	49308	18.314724
3	COMMITTED	20042	7.444303
4	CREATES	17948	6.666518
5	HAS_PARENT	11034	4.098415
6	DELETES	10481	3.893012
7	RENAMES	2764	1.026647
8	HAS_NEW_NAME	1570	0.583153
9	ON_COMMIT	1084	0.402636
10	DEPENDS_ON	962	0.357321
11	HAS_KEY	668	0.248119
12	HAS_VALUE	668	0.248119
13	CONTAINS	589	0.218775
14	OF_TYPE	329	0.122202
15	EXPORTS	275	0.102145
16	REFERENCES	196	0.072801
17	DECLARES	185	0.068716
18	DECLARES_DEV_DEPENDENCY	169	0.062773
19	DECLARES_DEPENDENCY	161	0.059801
20	HAS_MEMBER	99	0.036772
21	HAS_TYPE_ARGUMENT	92	0.034172
22	DECLARES_SCRIPT	91	0.033801
23	RESOLVES_TO	80	0.029715
24	RETURNS	80	0.029715
25	HAS_PARAMETER	70	0.026000
26	CONTAINS_VALUE	51	0.018943
27	COPIES	43	0.015972
28	INITIALIZED_WITH	32	0.011886
29	HAS_HEAD	29	0.010772

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
others
RENAMES
HAS_NEW_NAME

27.85% (74973)
27.85% (74973)
0.58% (1570)
1.03% (2764)
2.28% (6133)
3.89% (10481)
4.10% (11034)
6.67% (17948)
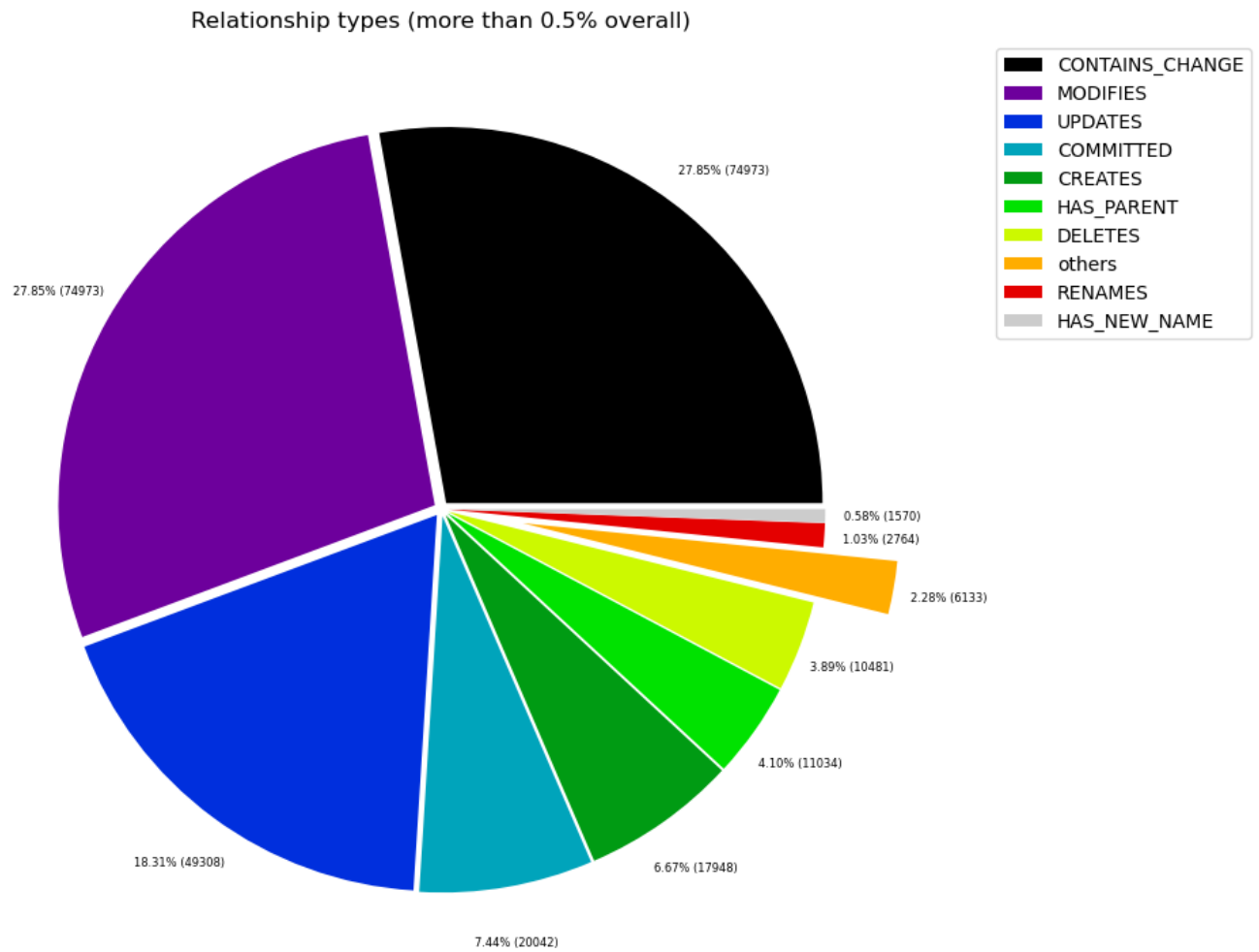7.44% (20042)
18.31% (49308)

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.
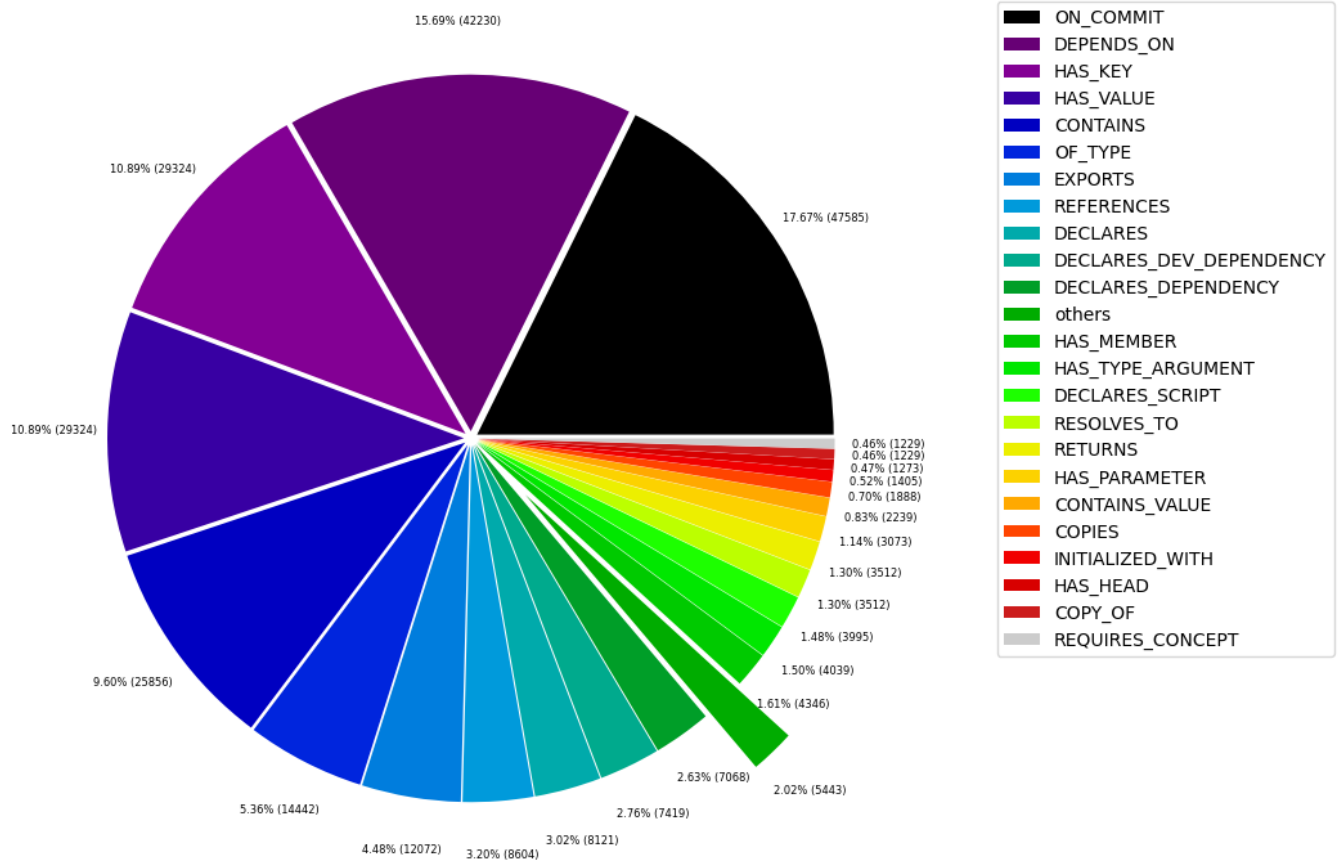
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONSTRAINED_BY	4	0.001486
1	REFERENCED_PROJECTS	5	0.001857
2	MEMBER	6	0.002229
3	HAS_ROOT	6	0.002229
4	HAS_NPM_PACKAGE	6	0.002229
5	HAS_CONFIG	6	0.002229
6	HAS_ARGUMENT	6	0.002229
7	DECLARES_ENGINE	6	0.002229
8	CONTAINS_PROJECT	6	0.002229
9	CALLS	6	0.002229
10	PARENT	6	0.002229
11	EXTENDS	7	0.002600
12	SIMILAR	10	0.003714
13	INCLUDES_CONCEPT	19	0.007057
14	USES	25	0.009286
15	REQUIRES_CONCEPT	28	0.010400
16	COPY_OF	28	0.010400
17	HAS_HEAD	29	0.010772
18	INITIALIZED_WITH	32	0.011886
19	COPIES	43	0.015972
20	CONTAINS_VALUE	51	0.018943
21	HAS_PARAMETER	70	0.026000
22	RETURNS	80	0.029715
23	RESOLVES_TO	80	0.029715
24	DECLARES_SCRIPT	91	0.033801
25	HAS_TYPE_ARGUMENT	92	0.034172
26	HAS_MEMBER	99	0.036772
27	DECLARES_DEPENDENCY	161	0.059801
28	DECLARES_DEV_DEPENDENCY	169	0.062773
29	DECLARES	185	0.068716

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

Pie chart values:
- 17.67% (47585)
- 15.69% (42230)
- 10.89% (29324)
- 10.89% (29324)
- 9.60% (25856)
- 5.36% (14442)
- 4.48% (12072)
- 3.20% (8604)
- 3.02% (8121)
- 2.76% (7419)
- 2.63% (7068)
- 2.02% (5443)
- 1.61% (4346)
- 1.50% (4039)
- 1.48% (3995)
- 1.30% (3512)
- 1.30% (3512)
- 1.14% (3073)
- 0.83% (2239)
- 0.70% (1888)
- 0.52% (1405)
- 0.47% (1273)
- 0.46% (1229)
- 0.46% (1229)

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]	74973	10021	
1	[Git, Change]	MODIFIES	[File, Git]	74973	74973	
2	[Git, Change]	UPDATES	[File, Git]	49308	74973	
3	[Git, Change]	CREATES	[File, Git]	17948	74973	
4	[Git, Commit]	HAS_PARENT	[Git, Commit]	11034	10021	
5	[Git, Change]	DELETES	[File, Git]	10481	74973	
6	[Author, Git, Person]	COMMITTED	[Git, Commit]	10021	1183	
7	[Committer, Git, Person]	COMMITTED	[Git, Commit]	10021	371	
8	[Git, Change]	RENAMES	[File, Git]	2764	74973	
9	[File, Git]	HAS_NEW_NAME	[File, Git]	1570	5135	
10	[Git, Tag]	ON_COMMIT	[Git, Commit]	1084	1084	
11	[Json, Value, Object]	HAS_KEY	[Json, Key]	668	133	
12	[Json, Key]	HAS_VALUE	[Json, Value, Scalar]	552	668	
13	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	285	47	
14	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	215	25	
15	[File, TS, Local, Module, Mark4ModuleWeaklyCon...]	DEPENDS_ON	[TS, ExternalDeclaration]	192	3	
16	[Package, File, Json, NPM]	DECLARES_DEV_DEPENDENCY	[NPM, Dependency]	169	29	
17	[Package, File, Json, NPM]	DECLARES_DEPENDENCY	[NPM, Dependency]	161	29	
18	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Primitive, ExternalType]	144	117	
19	[Type, TS, Declared, ExternalType]	REFERENCES	[TS, ExternalDeclaration]	141	272	
20	[TS, Function]	DEPENDS_ON	[TS, ExternalModule]	131	47	
21	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Literal, ExternalType]	119	117	
22	[Json, Key]	HAS_VALUE	[Json, Value, Object]	104	668	
23	[Type, Object, TS, ExternalType]	HAS_MEMBER	[Type, TS, ObjectMember, ExternalType]	98	38	
24	[Package, File, Json, NPM]	DECLARES_SCRIPT	[NPM, Script]	91	29	
25	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Declared, ExternalType]	69	117	
26	[File, Directory]	CONTAINS	[File, Directory]	63	34	
27	[TS, Interface]	DECLARES	[TS, Property]	61	18	
28	[File, Directory]	CONTAINS	[Package, File, Json, NPM]	58	34	
29	[File, Git]	RESOLVES_TO	[Package, File, Json, NPM]	57	5135	

Graph Density

```
total_number_of_nodes (vertices): 96325
total_number_of_relationships (edges): 269226
-> total directed graph density: 2.9016396161786052e-05
-> total directed graph density in percent: 0.0029016396161786052
```