

Make

```

In[ ]:= Make::usage =
  "Make[targets, sources, Hold[action]] makes a target, or a list of targets, given sources,
  or a list of sources, in the style of the unix 'make' command.";
Make[target_String, sources_, action_Hold] := Make[Evaluate@{target}, sources, action];
Make[targets_, source_String, action_Hold] := Make[targets, Evaluate@{source}, action];
Make[targets_List, sources_List, action_Hold] := Module[{ },
  If[
    (And @@ ((FileType[#] != None) & /@ sources)) &&
    Or[
      Or @@ ((FileType[#] == None) & /@ targets),
      Min[AbsoluteTime[FileDate[#]] & /@ targets] < Max[AbsoluteTime[FileDate[#]] & /@ sources]
    ],
    Print["Making ", targets, " ..."];
    ReleaseHold[action]
  ]
];

```

WordCloud

```

In[ ]:= sources = {"UnexpectedCyclic.tex"};
target = "WordCloud.png";

```

```

MakeWC[opts___] := Module[{words, words1, dict, T, dict1},
  words = ToLowerCase@DeleteStopwords@Flatten[
    StringSplit[TextWords[StringDelete[Longest["\\\" ~ LetterCharacter ...]]@ReadString[#]], "-"] & /@
    sources
  ];
  dict = Complement[
    Union[ToLowerCase@DictionaryLookup[], StringSplit[
      "aarhus abelian acknowledgements adjoint adjoints albert alekseev alexander antipode anton
      archibald artin arxiv associator associators bardakov basepoint behaviour berceanu
      bialgebra bialgebras bijection borromean brenndle brochier cablings centres chern chu
      claspers coadjoint cocommutative cocycle coface cofactor colour coloured colourful
      colourings colours combinatorially combinatorics componentwise conjecturally crans
      dancso det diffeomorphism drinfeld dror duflo enriquez equivariant etingof exp
      exponentiate fenn fibre flavours formulae framings functionals functor functorial
      functoriality functors furusho gluings goussarov grothendieck grouplike habiro
      halacheva harinck hatcher haviv homfly homomorphic homomorphicity homonymous homotopic
      homotopies hopf ihx injective inonu isometries isotopies isotopy jacobi jacobian
      kamnitzer kanenobu karene kashiwara kauffman kazhdan kishino kneissler knottings
      kohno kontsevich kricker kuperberg kurlin lescop leung lieberum linearization
      linearizations loday manin mcool meilhan meinrenken metrized milnor moded
      moding modulo multicategory multinary multiplicatively naot natan ohtsuki operad
      overcrossing overcrossings papadima parametrizing parenthesized parentetization
      parenthesization parenthesizations parenthetization perturbative planarity postfix
      preprint projectivization projectivizations proven quadrivalent quandle quandles
      reassociate reidemeister reutenauer rimanyi rolfsen roukema saito sanderson satoh
      sder selflinking semidirect semivirtual shima simons sinh skeleta skype subalgebra
      subalgebras subring surjection surjections surjective symmetrized tder teichmuller
      thurston torossian tr trivalence trivolution unbraided undercrossing undercrossings
      unfavourably unforbidden unignoring unipotent unital unitarity unitrivalent
      unknot unoriented usb valent vassiliev vergne verma versa vertices virtuals
      voldemort warmup watanabe wigner wirings wirtinger wko zhang zsuzsanna zsuzsi"
    ]],
    StringSplit[
      "ac aft aligned alpha array axiom bar begin beta bullet cali definition dj em end equation
      eta fa fig ill left lemma minus natan plus red ref rh
      right rs section talk theorem ts tv ty van video xi"
    ]
  ];
  dict1 = Dispatch[({# → T[#]} & /@ dict)];
  words1 = Cases[words /. dict1, T[w_] → w, {1}];
  WordCloud[words1, opts]
]

```

```
In[ ]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\UnexpectedCyclic"];
MakeWC[ImageSize -> 400]
```



```
In[ ]:= Make[target, Join[sources, {"index.nb"}], Hold[
  Export[target, MakeWC[ImageSize -> 420]];
  MakeThumb@target;
]]
```

Making {WordCloud.png} ...

Output

```

In[ ]:= {
  "TitleNotes" -> StringJoin["<div style=\"clear: right; float: right; padding: 8px; width: 400px;\"><a
    href=UnexpectedCyclic.pdf><img width=400px src=Rhombus.png></a></div>This is
    the construction / computation page for my joint paper with <a class=external
    href=\"http://www.rolandvdv.nl/\">Roland van der Veen</a>, <b>An Unexpected Cyclic
    Symmetry of  $I{\mathfrak u}_n$ </b> (<a href=UnexpectedCyclic.pdf>PDF here</a>).
  <p><b>Abstract.</b> We find and discuss an unexpected (to us) order  $n$  cyclic group
    of automorphisms of the Lie algebra  $I{\mathfrak u}_n := {\mathfrak u}_n \ltimes {\mathfrak u}_n^*$ , where  $I{\mathfrak u}_n$  is the Lie
    algebra of upper triangular  $n \times n$  matrices. Our results also extend to
     $gl_{n+1}^\epsilon$ , a "solvable approximation" of  $gl_n$ , as defined within.\n"
  ]
}

```

```

Out[ ]:= {TitleNotes ->
  <div style="clear: right; float: right; padding: 8px; width: 400px;"><a href=UnexpectedCyclic.pdf><img
    width=400px src=Rhombus.png></a></div>This is the construction / computation page for my joint
    paper with <a class=external href="http://www.rolandvdv.nl/">Roland van der Veen</a>, <b>An
    Unexpected Cyclic Symmetry of  $I{\mathfrak u}_n$ </b> (<a href=UnexpectedCyclic.pdf>PDF here</a>).
  <p><b>Abstract.</b> We find and discuss an unexpected (to us) order  $n$  cyclic group of automorphisms
    of the Lie algebra  $I{\mathfrak u}_n := {\mathfrak u}_n \ltimes {\mathfrak u}_n^*$ , where
     $I{\mathfrak u}_n$  is the Lie algebra of upper triangular  $n \times n$  matrices. Our results
    also extend to  $gl_{n+1}^\epsilon$ , a "solvable approximation" of  $gl_n$ , as defined within.
  }

```