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Modul:RoundN

Inhaltsverzeichnis

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Usage

This is a module for meta templates such as [Vorlage:TI](#), [Vorlage:TI](#), etc. Though originally designed for sports, it can be used to present any tree.

Basic form:

```
{{#invoke:RoundN|main|columns = [number of columns (3 columns for Round8, 4 columns for Round16)]}}
```

Alternatively, the shorthand form `{{#invoke:RoundN|N16}}` (or any power of 2 between N2 and N512) is equivalent to [Vorlage:Code](#)

Parameter List

- [Vorlage:Red](#) parameter names are required.
- *italicized* parameter names are required in some cases
- [Vorlage:Blue](#) parameter names involve new features not available prior to the release of this module

Parameter name	Description
Vorlage:TOC tab	<p>Number of columns/eliminations (3 columns for Round8, 4 columns for Round16, etc.)</p> <p>Note</p> <ul style="list-style-type: none"> • For columns <i>less than 4</i> (i.e. Round2-Round8), the 3rd Place match box is hidden by default. For columns <i>greater or equal to 4</i>, the 3rd Place match box is visible by default. This reflects the behavior of the templates prior to this module's release.

Parameter name	Description
	<p>Vorlage:TOC tab While required for invoking the main function (<code>{{#invoke:RoundN main columns=}}</code>), this module has meta functions in the form of 'N##' which can call main with the right Vorlage:Code for you. For example, you may replace <code>... main columns = 7...</code> with <code>... N128 ...</code>. Valid for N# where # is a power of 2. You must invoke this module directly to use this (vs. a template that already has a columns value). Only works up to N512. If say N1024 ever becomes necessary, call main directly and set Vorlage:Para.</p> <p>PS: Though adding shorthands up to N ~70 trillion would be easy, it would make unnecessary overhead as these meta functions are generated each time this module is called (granted generating such functions up to ~70 trillion is probably less expensive than making the table for columns = 3).</p>
Vorlage:TOC tab	<p>Unnamed parameters (i.e. a value not prefixed by [param_name] =) are read sequentially in groups of 5 such that:</p> <p>Example 1</p> <p>Vorlage:Demo Placing each group of 5 on a new line is optional, but does make it easier to read. Also, consider adding the comments such as <code><!-- Date-Place/Team 1/Score 1/Team 2/Score 2 --></code> on top and <code><!-- Finals --></code> above the first group of 5 in the finals round, etc.</p>
Vorlage:TOC tab	<p>Set the style parameter to add custom CSS to the table.</p> <p>Modul Diskussion:RoundN/testcases/1</p>
Vorlage:TOC tab	<p>For large tables, set Vorlage:Code to the desired height in pixels.</p> <p>Modul Diskussion:RoundN/testcases/1</p> <p>CSS units are also allowed (i.e. '20em', '30%', etc.).</p>

Parameter name	Description
	<p>Note This works by duplicating the entire table and then using CSS to lock the clone of the table to the top of the div. Conceivably, for extremely large tables, this can result in a significant amount of extra HTML code to download versus if <code>Vorlage:Code</code> is used.</p>
<code>Vorlage:TOC tab</code>	<p>If it is desirable to have the round heading scroll with the table (such as if a larger viewing area is desired), set <code>Vorlage:Code</code> to 'yes'</p> <p><code>Modul Diskussion:RoundN/testcases/1</code></p>
<code>Vorlage:TOC tab</code>	<p>If set, boxes for the #th match group will not be shown. Most often used for playoffs or when the number of teams playing in the first round is not a power of 2.</p> <p><code>Modul Diskussion:RoundN/testcases/1 Vorlage:TOC tab</code>: The shorthand <code> skipmatch = 1-2;4;6-7</code> will do the same thing as:</p> <pre> skipmatch1=yes skipmatch2=yes skipmatch4=yes skipmatch6=yes skipmatch7=yes</pre> <p>Note:</p> <ul style="list-style-type: none">• Unlike in the original templates, this module does not require leading zeroes in this parameter, i.e. <code>skipmatch001</code> is the same as <code>skipmatch1</code> (though it may make your template code easier to read if lead with an appropriate number of zeroes).• The 5 parameters that would have populated the skipped box will be ignored regardless of value unless <code>omit_blanks</code> is set to 'yes' (see below).• Previously, <code>skipmatch</code> only worked in the first round. This limitation no longer applies. (See <code>Module talk:RoundN/testcases/3</code>)
<code>Vorlage:TOC tab</code>	



Parameter name	Description
	<p>If <code>omit_blanks</code> is set to <code>yes</code>, then all parameters that would have been skipped will instead be shifted to the next non-skipped box. (This is turned off by default because most templates made before the release of this module were required to use empty parameters as placeholders.)</p> <p>Modul Diskussion:RoundN/testcases/1</p>
<p>Vorlage:TOC tab</p>	<p>The Vorlage:Code parameter accepts either Vorlage:Code or Vorlage:Code, which will automatically bold the text of the participant with the <i>higher</i> or <i>lower</i> score, respectively. In other words, set this to 'low' if the lower score wins and 'high' if the high score wins.</p> <p>Example 2</p> <hr/> <p>Modul Diskussion:RoundN/testcases/2 Note:</p> <ul style="list-style-type: none"> • If entering a score that includes non-numbers Vorlage:--such as <code>3 (6)</code>, the Semi Final score for team C in the above example Vorlage:--the module will first remove all non-digit characters and concatenate the rest. For example, <code>3 (5)</code> and <code>3 (6)</code> would be converted to <code>35</code> and <code>36</code>, respectively, before being compared. This should be valid for most cases, however, you may override using the <code>manualboldmatch##</code> parameter. • If the scores are tied or contain no numbers, then neither will be bolded, however, you may still manually bold them with wikimarkup. • This does not remove any formatting already present.
<p>Vorlage:TOC tab</p>	<p>Modul Diskussion:RoundN/testcases/2</p> <p>Vorlage:TOC tab The form <code>manualboldmatch = 1-3; 6;9-12</code> is also available.</p>
<p>Vorlage:TOC tab</p>	<p>Set <code> previewnumbers = yes</code> to show numbers next to each match group (useful for Vorlage:Code and Vorlage:Code) when viewing on the template page.</p>



Parameter name	Description																				
	Note that these numbers will not appear in article space.																				
Vorlage:TOC tab	Use RD#, replacing # with the desired column such that 1 is the leftmost round and X is the rightmost when columns = X. For example: Vorlage:Demo Note RD[N+1] = Third Place, and will perform the job of the Conso <code>l</code> parameter if the latter is omitted, i.e. RD[N+1] is ignored if Conso <code>l</code> is true. Also, this alternate name for Conso <code>l</code> was not available prior to the release of this module (and is provided because the module's programmer thought 'Conso <code>l</code> ' was unintuitive).																				
Vorlage:TOC tab	By default, 3rdplace= is set to 'yes' when columns is greater than 3 and 'no' otherwise. Override as desired. (See Conso <code>l</code> if you wish to rename this heading) Vorlage:Demo																				
Vorlage:TOC tab	Set Conso <code>l</code> =name to change the 'Third Place' label to 'name'. You may also use the form RD# where # = columns + 1. Vorlage:Demo																				
Vorlage:TOC tab	Add color=yes <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td colspan="2" style="text-align: center;">Final</td></tr> <tr><td colspan="2"> </td></tr> <tr><td colspan="2">7</td></tr> <tr><td>Gold medalist</td><td style="text-align: right;">3</td></tr> <tr><td>Silver medalist</td><td style="text-align: right;">2</td></tr> <tr><td colspan="2"> </td></tr> <tr><td colspan="2" style="text-align: center;">Third place</td></tr> <tr><td colspan="2">8</td></tr> <tr><td>Bronze medalist</td><td style="text-align: right;">1</td></tr> <tr><td> </td><td style="text-align: right;">0</td></tr> </table>	Final				7		Gold medalist	3	Silver medalist	2			Third place		8		Bronze medalist	1		0
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Bronze medalist	1																				
	0																				
Vorlage:TOC tab	Set team-width to the desired width in pixels. (Default is 170)																				
Vorlage:TOC tab	Set score-width to the desired width in pixels.																				

Parameter name	Description
	(Default is 30)
Vorlage:TOC tab	Setting widescore=yes is basically equal to score-width=40. Provided for compatibility. Ignored if score-width is set.
Vorlage:TOC tab	Set score-boxes to the desired number of score boxes per match. (Default is 1). The number can be followed by + sum, which will add one more score box with the sum of all the others. For examples, see test case 5 and test case 6 .
Vorlage:TOC tab	Set template=yes if used to create a template for a specific game (add V.T.E. link using Vorlage:TI).
Vorlage:TOC tab	Set flex_tree=yes to make the brackets more compact. That is, to have less space between matches of the same round.

Node Functions

Vorlage:Ombox

For greater customization, node functions may be added to the parameter usually used for providing match information such as dates and location. Simply insert `node_function{function name}` in the appropriate location. A demonstration of most of the node functions can be found at [RoundN/testcases/4](#).

- **orphan** - Current node is disconnected from all other nodes (no lines will be drawn). One practical use for this may be when the winners of the previous round advance to a different tournament instead of playing each other but the losers still play a consolation match for 3rd place, as per [this discussion](#).

For the next three node functions, the parameters usually used for team names and scores should be omitted if these node functions are used.

- **line** - Current node is omitted and replaced with a horizontal line. Text may be displayed above this line via `node_function{line(text)}` (at some point, the preferred format would be `node_function{line}text` to match the form of the canvas function though backwards compatibility would probably be maintained). If [curly brackets](#) are desired in the text, make sure to escape them with `\`.
- **bridge** - Current node is omitted and replaced with a vertical line.
- **canvas** - Current node is replaced with whatever you want via `node_function{canvas}anything`



- **heading** - Not yet implemented. Planned node function with the form `node_function {heading(name)}date/location`. Makes a round name heading like for the `Consol` parameter, but may be placed anywhere, as per the "Elimination Rounds" of `RoundN/testcases/6` (which currently renders the planned output of this function without the functions).

Undocumented features

Alas `User:Codehydro` seriously overbuilt this module and never found the time to document even half the features available. Check out the following examples which may contain some advanced features: `Spezial:PrefixIndex/Module talk:RoundN/testcases`

Partial List of undocumented params

- `no_column_head`
- `short_brackets`
- `branch_upwards`

Note that some of these features may not have been documented due to incomplete implementation.

```
local p = {
  RD = {
    'Quarter-finals',
    'Semi-finals',
    'Final',
    'Third place'
  },
  bgColor = {head = {'#f2f2f2', 'gold', 'silver', '#C96', '#f9f9f9'}},
  reuseStr = {},
  saveStr = function(self, name, ...)
    if not self.reuseStr[name] then
      self.reuseStr[name] = table.concat{...}
    end
    return self.reuseStr[name]
  end
end
}

--Provides a convenient naming shortcut up to {{#invoke:RoundN|N512}} = {{invoke:
for columns = 1, 9 do
  local N = math.pow(2, columns)
  p['N' .. N] = function(frame)
    return p.main(frame.args, columns)
  end
  p['n' .. N] = p['N' .. N]--to make case insensitive
end

--saves memory and avoids errors when using a nil as a table by providing a tempo
p.nilAsTab = {
  __index = function(t, i)
    return setmetatable({}, setmetatable(p.nilAsTab, {__index = {t =
  end,
  __newindex = function (pt, pi, v) --store new values in actual table rath
rawset(p.nilAsTab.t, p.nilAsTab.i, {})[p.nilAsTab.i][pi] = v
setmetatable(p.nilAsTab.t[p.nilAsTab.i], {__call = p.nilAsTab.__c
```

```

        end,
        __call = function(t, i)
            return t and rawget(t, i)
        end
    }
    --never assign a value to these or they will stop being empty
    local infiniteEmpty = setmetatable({}, {__index = setmetatable({}, p.nilAsTab), p
    local callableEmpty = setmetatable({}, p.nilAsTab)

    local rowNum, head, m, col, tab, esc = {}, {}, {num = 1, phase = 0, bold = infin
        bs = require'Module:Escape', --backslash
        comma = [['(%([^\,]*)|([^\%])*)']] = '%1|@!#|%2', --escape commas in ()
    }
    local nodeFunc = {
        scanPattern = function(self, args, step)
            self.pattern = nil
            if args[step] then
                self.pattern, self.nonFunc = string.match(esc.bs:text(args[step]
            end
            if self.pattern then
                for k, v in pairs(esc.comma) do
                    self.pattern = self.pattern:gsub(k, v)
                end
                self.nonFunc = self.nonFunc and esc.bs:undo(self.nonFunc)
                self.pattern = mw.text.split(self.pattern, '%s*','%s*')
                for k, v in ipairs(self.pattern) do
                    local func, arg = string.match(v, '^(%w+)%?(?([^\%]
                    if func and self[func] and self[func].main then
                        self.pattern[k] = func
                        if arg then
                            for x, y in pairs(esc.comma) do
                                arg = esc.bs:undo(arg):gsub(y, x)
                            end
                            self[func].arg = self[func].arg and self[func].arg .. arg
                            self[func].arg[m.num] = arg
                        end
                    end
                end
            end
            return self.pattern
        end,
        helper = {
            topBranch = function()--node is top of fork if top is 0
                return (m.num - col.top) % 2
            end,
            addText = function(text)
                if text and text ~= '' then
                    tab.r:wikitext(text)
                end
            end
        },
        line = {--this node is omitted and replaced with a line
            main = function(x)
                local h = p.getNodeFunc()
                if m.available then
                    local text, topId, isTop, notTop = h.line.arg[m.num]
                    isTop = topId == 0
                    notTop = {[isTop and 1 or 0] = p.reuseStr.solid}
                    for k = 0, 1 do
                        tab.r = rowNum[m.r + k * 4]:tag'td'
                            :css(notTop[k] and
                                {[isTop and 'border-top'
                                    or {}]
                            )
                end
            end
        }
    }

```

```

                                :attr{
                                    rowspan = ({[0] = 4, 2})
                                    colspan = p.colspan
                                }
                                h.addText(text or h.nonFunc)
                                text = nil
                            end
                            m.available = false
                        else
                            return nil
                        end
                    end
                    return x
                end
            },
            bridge = {--Draw a line to the neighboring node in the same column that
                main = function(x)
                    local h = p.getNodeFunc()
                    h.bridge.lay[col.c][m.num - col.top + 1 + (h.topBranch())
                    h.addText(nonFunc)
                    return x
                end,
                lay = setmetatable({}, p.nilAsTab)
            },
            canvas = {--Merges all cells in node. Content will be the next parameter
                main = function(x)
                    local h = p.getNodeFunc()
                    if m.available then
                        tab.r = rowNum[m.r]:tag'td'
                            :attr{
                                rowspan = 6,
                                colspan = p.colspan
                            }
                        h.addText(h.nonFunc)
                        m.available = false
                        return x
                    else
                        return nil
                    end
                end
            },
            orphan = {--sets a flag for skipMatch to be set by p._main
                main = function(x)
                    p.getNodeFunc().orphan.num = m.num
                    return x
                end
            },
            skipAllowed = {--table of supported node functions when node is skipped
                bridge = true,
                canvas = true
            }
        }

setmetatable(nodeFunc.helper, {__index = nodeFunc})
function p.getNodeFunc()
    return nodeFunc.helper
end

local function newRow(bodyRow)
    local first = p.flex_tree.merge and mw.clone(p.flex_tree.cell) or p.flex_
    tab.r = tab:tag'tr'
        :node(first)
    if bodyRow then
        table.insert(rowNum, bodyRow, tab.r)
        if p.flex_tree.merge then

```



```

        rowNum[bodyRow].first = first
        rowNum[bodyRow].first.unchanged = true
    end
end
end
local function drawHead(text, row3rd)
    local td = (row3rd and rowNum[row3rd]:tag'td':attr{rowspan = 2}
    or head.row:tag'td')
    :attr{colspan = p.colspan}
    if text ~= 'omit_label' then
        td:wikitext(text):css{
            ['text-align'] = 'center',
            border = '1px solid #aaa',
            background = p.bgColor.head
        }
    end
end
end
local function spacer(width)
    tab.r:tag'td'
        :attr{width = width}
        :wikitext(p.no_column_head and ' ' or '&nbsp;')
end
end
local function dpBox(v, r)
    p.dpBoxBase = p.dpBoxBase or mw.html.create'td':attr{rowspan = 2, colspan = 2}
    if not v then
        p.dpBoxEmpty = p.previewnumbers and mw.clone(p.dpBoxBase) or p.dpBoxBase
        rowNum[r]:node(p.dpBoxEmpty)
    else
        rowNum[r]:node(mw.clone(p.dpBoxBase):wikitext(v))
    end
end
end
p.scoreWasher = {
    numberFormat = '%-?%d+%.?%d*',
    main = function (self, s)
        if s then
            for _, cycle in ipairs(self.cycles) do
                s = s:gsub(unpack(cycle))
            end
            if p.scoreSumBox and self.plus then
                local t = 0
                for _, part in ipairs(mw.text.split(s, self.plus)) do
                    t = t + (tonumber(part:match('%-?%d+%.?%d*')) or 0)
                end
                return t
            end
            return tonumber(s:match(self.numberFormat)) or math.huge
        end
        return 0
    end,
    spin = function(self, v)
        table.insert(self, v)
        return self
    end,
    load = function (self, cycle)
        local wash, rinse = 0, {spin = self.spin}
        for v in cycle:gfind('%([[^%(%)]-)%') do
            if v == '_plus_' then
                self.plus = v
                rinse:spin(v)
                cycle = cycle:gsub('%(_plus_)',' ', 1)
            end
        end
    end
end
```

```
                else
                    wash = wash + 1
                    rinse:spin('%'):spin(wash)
                end
            end
            table.insert(self.cycles, {esc.bs:undo(cycle, '%')}, table.concat(
end,
init = function(self, setting)
    self.cycles = {original = setting}
    for cycle in (setting and esc.bs:text(setting) or '{<.->} {[^%d]}')
        self:load(cycle)
    end
end,
    sum = function (clean)
        local sum = {0, 0}
        for _, box in ipairs(clean) do
            for team, score in ipairs(box) do
                sum[team] = sum[team] + score
            end
        end
        return unpack(math.max(unpack(sum)) == math.huge and {'&mdash;'},
    end
}

local function boldWin(s1, s2)
    return setmetatable(
        p.bold and s1 ~= s2 and (math[({'min', 'max'})[p.bold]](s1, s2) =
        p.nilAsTab
    )
end

local function maxSpan(span, start, rows)
    return math.min(span, math.max(0, rows - start + 1))
end

--in case of templates like RDseed need padding value
p.teamBoxPadding = function()
    return '.6ex'
end
p.teamBoxPadTab = {padding = '0 ' .. p.teamBoxPadding()}
p.teamBoxNormal = {border = '1px solid #aaa', background = p.bgColor[4]}
local function teamBox(v, r, f)
    if p.flex_tree.merge and not v and f.phase == 2 then
        for i = -2, 0 do
            if rowNum[r + i].first.unchanged then
                rowNum[r + i].first.unchanged = nil
                rowNum[r + i].first:node(p.unflex_div)
            end
        end
        tab.r:attr{rowspan = 4}:css[['vertical-align'] = 'center']
    else
        if not p.bold then
            --backwards compatability (wikitemplates bold each arg individual)
            local hasBold, b = tostring(v):gsub("([^\']*"'([^\']*")",
            if b == 1 then
                v = hasBold
            end
        end
        end
        local cell
        if f[1] then
            cell = f.sumBox and f.sumBox[1] and
                {padding = f.sumBox[1]}
                or {'border-left' = f.borderLeft}
            cell['text-align'] = v and f[1]
        end
    end
end
```



```

        'no_column_head',
        'short_brackets',
        'branch_upwards'
    }) do
        if args[v] and (p[v] == nil or type(p[v]) == 'boolean') then
            p[v] = args:clean(v) == 'yes' or args[v] == 'true'
        end
    end
end
p.namespace = mw.title.getCurrentTitle().namespace
p.previewnumbers = p.namespace ~= 0 and p.previewnumbers
p.scoreWasher:init(args['score-clean'])
p.scoreWasher.demo = args.demoWash and tonumber(args:clean('demoWash', {
p.scoreSumBox = args['score-boxes'] and args['score-boxes']:match('%d ?%+
p.bold = ({low = 1, high = 2})[args:clean('bold_winner')] or p.scoreSumBo
local sumBox = p.scoreSumBox and 1 or 0
p.scoreBoxes = (tonumber(args:clean('score-boxes', {pattern = '%D'})) or
p.scoreSumBox = p.scoreBoxes > 0 and p.scoreSumBox or nil
local boxStyle = p.scoreBoxes > 1 and
    (p.scoreSumBox and
        setmetatable(
            {}, [p.scoreBoxes] = {'0 lex'}},
            {__call = function(t, i) if t[i] then return nil
        )
        or setmetatable(
            {},
            {__call = function() return 0 end}
        )
    )
    or setmetatable({}, {__call = function() return nil end})
p.colspan = p.scoreBoxes > 0 and (p.scoreBoxes + 1) or nil
local nodeArgs = {
    score = p.scoreBoxes - sumBox,
    team = {offset = 1 + p.scoreBoxes - sumBox}
}
nodeArgs.all = 1 + nodeArgs.team.offset * 2
nodeArgs.tableSum = {
    __add = function(v, t)
        if #t == 3 then
            return v + nodeArgs.all
        end
        local s = v
        for i, n in ipairs(t) do
            s = s + n
        end
        return s--[[ + (p.scoreSumBox and #t == 3 and -2 or 0) -
    end
}
nodeArgs.team[1] = 1--constant to be replaced later by new param
nodeArgs.team[2] = nodeArgs.team[1] + nodeArgs.team.offset
nodeArgs.blank = setmetatable({}, nodeArgs.tableSum)
p.unflex_div = mw.html.create'div'
        :css{overflow = 'hidden', height = 'lex'}
        :wikitext'&nbsp;'
p.flex_tree = setmetatable({}, {__index = {
    merge = p.flex_tree and p.scoreBoxes == 0,
    wt = p.flex_tree and '' or '&nbsp;',
    cell = mw.html.create'td'
        :node(not p.flex_tree and p.unflex_div or nil)
}})
if args:clean'scroll_height' then
    local fontSize, fontUnit = args.style and args.style:match('font
    if fontSize then
        local units = {
            em = 1,

```

```
                ex = 2,  
                ['%'] = 0.01  
            }  
            fontSize, fontUnit = {fontSize * fontUnit}  
        end  
end  
tab  
    :cssText(table.concat{args.scroll_height and 'padding' or 'margin'  
    :attr{cellpadding = 0, cellspacing = 0}  
if not p.no_column_head then--headings row  
    newRow()  
    head.row = tab.r  
    :css{['white-space'] = args.scroll_height and 'nowrap'}  
    newRow()  
else  
    tab.r = tab:tag'tr'  
    tab.r:tag'td'  
end  
local sp = {--set column widths  
    args['team-width'] or 170,  
    p.widescore and 40 or 30,  
    p.short_brackets and 6 or 15,  
    p.short_brackets and 4 or 20  
}  
local scoreWidth = args:clean('score-width', {pattern = '[^%d;]'}) and mw  
scoreWidth[1] = tonumber(scoreWidth[1], 10)  
if p.scoreSumBox and #scoreWidth ~= 1 then  
    local _scoreWidth = {}  
    for k = 1, p.scoreBoxes - 1 do  
        _scoreWidth[k] = tonumber(scoreWidth[k], 10) or math.ceil  
    end  
    setmetatable(scoreWidth, _scoreWidth)  
end  
if p.template or p.article_include then  
    p.template = mw.title.new(args.name)  
    p.templateFixedName = (p.template.namespace == 0 and not p.artic  
end  
p.template = p.template and mw.title.new(args:clean('name', {pattern = '  
local head_br = {  
    count = 0,  
    compare = function (self, text)  
        if text and args.scroll_height then  
            local _, count = text:gsub('<br[ >/]', '%1')  
            self.count = math.max(self.count, count)  
        end  
        return text  
    end  
end  
}  
p.branch_upwards = p.branch_upwards and 0  
for k = 1, p.cols do  
    if k > 1 then  
        spacer(sp[3])  
        spacer(sp[4])  
        if not p.no_column_head then  
            head.row:tag'td':attr{colspan = 2}  
        end  
    end  
    spacer(sp[1])  
    for s = 1, p.scoreBoxes do  
        spacer(#scoreWidth == 1 and scoreWidth[1] or scoreWidth[4  
    end  
    if not p.no_column_head then  
        head.wt = head_br:compare(args:clean('RD' .. k, {pattern  
        or p.RD[#p.RD + k - p.tCols - 1]
```

```
        or ('Round of ' .. math.pow(2, p.tCols - k + 1))
      drawHead(
        k == 1 and p.template and mw.getCurrentFrame():ex
          title = 'navbar-header',
          args = {head.wt, p.templateFixedName}
        } or head.wt
      )
    end
  end
  sp.row = tab.r
  col.tot = math.pow(2, p.tCols - 1)
  local step, bump, bumpBase, rows = 1, 0, mw.html.create'td':attr{colspan
  args.line_px = table.concat{args:clean('line_px') or 3, args.line_px ~=
  tab.line = {--reduces concats and 'or' statements
    {
      [true] = args.line_px,
      [false] = 0
    },
    args.line_px:rep(2):gsub('%a(%d)', '%1 %2', 1)
  }
  p['3rdplace'] = p.tCols == p.cols and (p['3rdplace'] or p.cols > 3 and r
  if p['3rdplace'] then
    p.textThird = args.Consol or args['RD' .. (p.cols + 1)] or p.RD[4
    local no3rdText = p.no_column_head or p.textThird and p.textThird
    rowNum.third = math.max(math.pow(2, p.branch_upwards and -3 or p
  end
  for r = 1, rowNum.third or rows do
    newRow(r)
  end
  p:saveStr('solid', tab.line[1][true], ' solid')
  p.cornerDiv = mw.html.create'div':css{height = tab.line[1][true], ['borde
  for c = 1, p.cols do
    col.c = c
    local bumps = bump
    if c > 1 then
      col.tot = col.tot + math.pow(2, p.tCols - c)
      if p.branch_upwards then
        bumps = 0
        rowNum[1]:tag'td':attr{rowspan = 4}
      else
        rowNum[1]:node(c < p.cols and
          mw.clone(bumpBase):attr{rowspan = bump}
          or p.no_column_head and p.template and
            mw.html.create'td':wikitext(mw.getCurrent
              title = 'navbar-header',
              args = {'', p.templateFixedName}
            ))
        )
      end
    end
  end
  col.top = m.num
  p.span = p.tCols > c and bump * 2 or p.branch_upwards or math.max
  col.show3rd = p['3rdplace'] and c == p.tCols and rowNum.third
  local colorFinal, bumpMid = p.color and c == p.tCols, p.span > 0
  for r = 1, col.show3rd or rows, 2 do
    m.r = r + bumps
    if col.show3rd or rowNum[m.r] and m.num <= col.tot then
      if m.phase == 0 then
        m.showBox = setmetatable({1, nodeArgs.tee
          if nodeFunc:scanPattern(args, step) then
            nodeFunc.called = {}
            m.available = true
          else
            m.available = nil
          end
        }
      end
    end
  end
end
```

```
end
end
if skipMatch[m.num] then
  if m.phase == 0 then
    if nodeFunc.pattern then
      for x, y in ipairs(nodeFunc.pattern) do
        if nodeFunc.skipMatch[x] then
          nodeFunc.skipMatch[x] = true
        end
      end
    end
    end
    local canvas = nodeFunc.pattern and (nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern)
  elseif m.phase == 2 then
    if nodeFunc.pattern and (nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern) then
      step = step + 1
    end
    m.num = m.num + 1
    step = step + (p.omit_blanks and 1 or 0)
    bumps = bumps + (col.show3rd and 1 or 0)
  end
elseif m.phase == 0 then
  if nodeFunc.pattern then
    for x, y in ipairs(nodeFunc.pattern) do
      if nodeFunc[y] and nodeFunc[y] then
        nodeFunc.called[y] = true
      end
    end
    end
    if m.available == false then
      m.showBox = nodeArgs.blindBox
      step = step + 1
    end
  end
end
if m.showBox[1] then
  if col.show3rd then
    col.show3rd = (m.num - col.show3rd)
    if col.show3rd == 2 then
      if p.textThird:match(' ') then
        p.textThird = ' '
      end
      if rowNum[rows + col.show3rd] then
        rowNum[rows + col.show3rd] = ' '
      end
    end
  }
  if p.tCols == 1 then
    bumps = p.tCols
  elseif p.branch_t then
    r = 7
    bumps = p.tCols
  end
  m.r = r + bumps
  if p.textThird then
    drawHead(m.r, col.show3rd)
    bumps = bumps + 1
    m.r = r + bumps
  end
end
end
dpBox(nodeFunc.pattern and nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern)
if p.previewnumbers then
  rowNum[m.r].nodes[#rowNum[m.r]] = nodeFunc.pattern[m.r + (canvas or 0)]:tag'div'
```



```

teamBox(r
end
end
end
end
end
if m.phase == 2 then
col.show3rd = col.show3rd ~= 2 and
if p.scoreWasher.demo and p.score
table.insert(m.bold.clear
return table.concat{
'Score data for n
mw.dumpObject{sc
'<table>',
tostring(sp.row)
tostring(rowNum[n
tostring(rowNum[n
tostring(rowNum[n
}
end
if nodeFunc.orphan.num == m.num t
skipMatch[m.num] = 'orpha
end
step = step + m.showBox
m.num = m.num + 1
if bump > 0 and rowNum[m.r + 2] a
bumps = bumps + p.span
rowNum[m.r + 2]:node(bump
end
r = r + (col.show3rd or bump)
end
end
m.phase = (m.phase + 1) % 3
end
end
if p.cols > c then--draw lines to next round
p.unit = bump + 3
bump = 3 * math.pow(2, c) - 3
bumps = p.branch_upwards and 4 or (p.unit + 1)
rowNum[1]
:tag'td':attr{rowspan = bumps}
if not p.branch_upwards then
rowNum[1]:tag'td'
:attr{rowspan = (p.branch_upwards or bump
:css(nodeFunc.bridge.lay[C](0) and
{'border-right' = p.reuseStr.sc
or {}
)
end
col.n = 0
for r = bumps + 1, rows, p.unit * 2 do
tab.r = rowNum[r]:tag'td'
local interval = ((r - bumps - 1) / (p.unit * 2))
if interval % 2 == 0 then
--col.t and col.t2 control whether lines
col.t = col.t2 or skipMatch[col.tot + col
col.n = col.n + 2
col.t2 = skipMatch[col.tot + col.n / 2 +
if col.t == 0 then
tab.r
:attr{rowspan = maxSpan(p
:css(skipMatch[col.tot +
border = p.reuseStr
['border-left' =
})

```

```
else
  tab.r
    :attr{rowspan = maxSpan(p
    :cssText(col.t == 2 and
      p:saveStr('topRig
      or col.t == 1 and
      p:saveStr
      or 'verti
    )
    or nil
  )
  :node(col.t == 1 and inte
  rowNum[r + (p.branch_upwards and
  :attr{rowspan = maxSpan(p
  :cssText(col.t == 1 and
    p:saveStr('bttmRe
    or col.t == 2 and
    p:saveStr
    or 'verti
  )
  or nil
)
:node(col.t == 2 and inte
end
col.t = {
  col.t < 3,
  rowNum[r + p.unit * 5] and col.t2
}
rowNum[r + (p.branch_upwards or p.unit)]
:attr{rowspan = maxSpan(p.unit *
:css(interval == 0 and (col.t[1]
  ['border-width'] = table
  ['border-style'] = 'solid
} or {}))
else
  tab.r
    :attr{rowspan = maxSpan(p.unit *
    :css(nodeFunc.bridge.lay[c](col.r
      {'border-right'] = p.re
      or {}
    )
  end
end
end
end
end
local lock_height = (head_br.count or 0) + 1
return args.scroll_height and
  mw.html.create'div'
    :cssText'border-bottom:1px solid #eee;display:inline-bloc
    :node(not (p.scroll_head_unlock or p.no_column_head) and
      :css{
        overflow = 'hidden',
        height = lock_height * 1.4 + 1.6 .. 'em',
        ['border-bottom'] = 'inherit',
        ['margin-right'] = '17px'
      }
    :node(mw.clone(tab))
  )
:tag'div'
:css{
  ['overflow-y'] = 'scroll',
  ['max-height'] = tonumber(args.scroll_he
}
:node(not (p.scroll_head_unlock or p.no_column_he
```

```
tab:css{['margin-top'] = math.floor(-10 *
or tab
)
:done()
)
or tab
end
--[[local standard = {
  'beta' = {
    bold_winner = 'high',
    omit_blanks = 'yes',
    auto_3rd = 'yes'
  }
}]
function p.main(frame, columns)
  local args = require'Module:Arguments'.getArgs(frame, {trim = false})
  args.columns = args.columns or columns
  return p._main(args)
end
function p.seed(frame)
  local parent = frame:getParent() or frame
  local function arg(k, alt)
    return parent.args[k] or frame.args[k] or alt
  end
  local padding, width = arg(2, p.teamBoxPadding()), arg(3, arg('widescore'
padding = tonumber(padding) and tonumber(padding) .. 'px' or padding
width = tonumber(width) and tonumber(width) .. 'px' or width
return mw.html.create'div'
  :css{
    margin = ('-1px %s -1px -%s'):format(padding, padding),
    float = 'left',
    ['background-color'] = p.bgColor.head,
    border = '1px solid #aaa',
    ['text-align'] = 'center',
    width = width
  }
  :wikitext(arg(1, '&nbsp;'))
end
return p
```

Modul:RoundN

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Usage

This is a module for meta templates such as **Vorlage:TI**, **Vorlage:TI**, etc. Though originally designed for sports, it can be used to present any tree.

Basic form:

```
{{#invoke:RoundN|main|columns = [number of columns (3 columns for Round8, 4 columns for Round16, etc.)]}}
```

Alternatively, the shorthand form `{{#invoke:RoundN|N16}}` (or any power of 2 between N2 and N512) is equivalent to **Vorlage:Code**

Parameter List

- **Vorlage:Red** parameter names are required.
- *italicized* parameter names are required in some cases
- **Vorlage:Blue** parameter names involve new features not available prior to the release of this module

Parameter name	Description
Vorlage:TOC tab	<p>Number of columns/eliminations (3 columns for Round8, 4 columns for Round16, etc.)</p> <p>Note</p> <ul style="list-style-type: none"> • For columns <i>less than 4</i> (i.e. Round2-Round8), the 3rd Place match box is hidden by default. For columns <i>greater or equal to 4</i>, the 3rd Place match box is visible by default. This reflects the behavior of the templates prior to this module's release.



Parameter name	Description
	<p>Vorlage:TOC tab While required for invoking the main function (<code>{{#invoke:RoundN main columns=}}</code>), this module has meta functions in the form of <code>'N##'</code> which can call main with the right Vorlage:Code for you. For example, you may replace <code>... main columns = 7...</code> with <code>... N128 ...</code>. Valid for <code>N#</code> where <code>#</code> is a power of 2. You must invoke this module directly to use this (vs. a template that already has a <code>columns</code> value). Only works up to <code>N512</code>. If say <code>N1024</code> ever becomes necessary, call main directly and set Vorlage:Para.</p> <p>PS: Though adding shorthands up to <code>N ~70 trillion</code> would be easy, it would make unnecessary overhead as these meta functions are generated each time this module is called (granted generating such functions up to <code>~70 trillion</code> is probably less expensive than making the table for <code>columns = 3</code>).</p>
Vorlage:TOC tab	<p>Unnamed parameters (i.e. a value not prefixed by <code>[param_name]</code> <code>=</code>) are read sequentially in groups of 5 such that:</p> <p>Example 1</p> <p>Vorlage:Demo Placing each group of 5 on a new line is optional, but does make it easier to read. Also, consider adding the comments such as <code><!-- Date-Place/Team 1/Score 1/Team 2/Score 2 --></code> on top and <code><!-- Finals --></code> above the first group of 5 in the finals round, etc.</p>
Vorlage:TOC tab	<p>Set the <code>style</code> parameter to add custom CSS to the table.</p> <p>Modul Diskussion:RoundN/testcases/1</p>
Vorlage:TOC tab	<p>For large tables, set Vorlage:Code to the desired height in pixels.</p> <p>Modul Diskussion:RoundN/testcases/1</p> <p>CSS units are also allowed (i.e. <code>'20em'</code>, <code>'30%'</code>, etc.).</p>

Parameter name	Description
	<p>Note This works by duplicating the entire table and then using CSS to lock the clone of the table to the top of the div. Conceivably, for extremely large tables, this can result in a significant amount of extra HTML code to download versus if <code>Vorlage:Code</code> is used.</p>
<code>Vorlage:TOC tab</code>	<p>If it is desirable to have the round heading scroll with the table (such as if a larger viewing area is desired), set <code>Vorlage:Code</code> to 'yes'</p> <p><code>Modul Diskussion:RoundN/testcases/1</code></p>
<code>Vorlage:TOC tab</code>	<p>If set, boxes for the #th match group will not be shown. Most often used for playoffs or when the number of teams playing in the first round is not a power of 2.</p> <p><code>Modul Diskussion:RoundN/testcases/1 Vorlage:TOC tab</code>: The shorthand <code> skipmatch = 1-2;4;6-7</code> will do the same thing as:</p> <div style="border: 1px dashed blue; padding: 5px; margin: 10px 0;"> <pre> skipmatch1=yes skipmatch2=yes skipmatch4=yes skipmatch6=yes skipmatch7=yes</pre> </div> <p>Note:</p> <ul style="list-style-type: none"> • Unlike in the original templates, this module does not require leading zeroes in this parameter, i.e. <code>skipmatch001</code> is the same as <code>skipmatch1</code> (though it may make your template code easier to read if lead with an appropriate number of zeroes). • The 5 parameters that would have populated the skipped box will be ignored regardless of value unless <code>omit_blanks</code> is set to 'yes' (see below). • Previously, <code>skipmatch</code> only worked in the first round. This limitation no longer applies. (See <code>Module talk:RoundN/testcases/3</code>)
<code>Vorlage:TOC tab</code>	

Parameter name	Description
	<p>If omit_blanks is set to yes, then all parameters that would have been skipped will instead be shifted to the next non-skipped box. (This is turned off by default because most templates made before the release of this module were required to use empty parameters as placeholders.)</p> <p>Modul Diskussion:RoundN/testcases/1</p>
<p>Vorlage:TOC tab</p>	<p>The Vorlage:Code parameter accepts either Vorlage:Code or Vorlage:Code, which will automatically bold the text of the participant with the <i>higher</i> or <i>lower</i> score, respectively. In other words, set this to 'low' if the lower score wins and 'high' if the high score wins.</p> <p>Example 2</p> <hr/> <p>Modul Diskussion:RoundN/testcases/2 Note:</p> <ul style="list-style-type: none"> • If entering a score that includes non-numbers Vorlage:--such as 3 (6), the Semi Final score for team C in the above example Vorlage:--the module will first remove all non-digit characters and concatenate the rest. For example, 3 (5) and 3 (6) would be converted to 35 and 36, respectively, before being compared. This should be valid for most cases, however, you may override using the <code>manualboldmatch##</code> parameter. • If the scores are tied or contain no numbers, then neither will be bolded, however, you may still manually bold them with wikimarkup. • This does not remove any formatting already present.
<p>Vorlage:TOC tab</p>	<p>Modul Diskussion:RoundN/testcases/2</p> <p>Vorlage:TOC tab The form <code>manualboldmatch = 1-3; 6;9-12</code> is also available.</p>
<p>Vorlage:TOC tab</p>	<p>Set <code> previewnumbers = yes</code> to show numbers next to each match group (useful for Vorlage:Code and Vorlage:Code) when viewing on the template page.</p>

Parameter name	Description																
	Note that these numbers will not appear in article space.																
Vorlage:TOC tab	Use RD#, replacing # with the desired column such that 1 is the leftmost round and X is the rightmost when columns = X. For example: Vorlage:Demo Note RD[N+1] = Third Place, and will perform the job of the Conso <code>l</code> parameter if the latter is omitted, i.e. RD[N+1] is ignored if Conso <code>l</code> is true. Also, this alternate name for Conso <code>l</code> was not available prior to the release of this module (and is provided because the module's programmer thought 'Conso <code>l</code> ' was unintuitive).																
Vorlage:TOC tab	By default, 3rdplace= is set to 'yes' when columns is greater than 3 and 'no' otherwise. Override as desired. (See Conso <code>l</code> if you wish to rename this heading) Vorlage:Demo																
Vorlage:TOC tab	Set Conso <code>l</code> =name to change the 'Third Place' label to 'name'. You may also use the form RD# where # = columns + 1. Vorlage:Demo																
Vorlage:TOC tab	Add color=yes <table border="1" data-bbox="472 1400 917 1904"> <tr><td colspan="2">Final</td></tr> <tr><td colspan="2">7</td></tr> <tr><td>Gold medalist</td><td>3</td></tr> <tr><td>Silver medalist</td><td>2</td></tr> <tr><td colspan="2">Third place</td></tr> <tr><td colspan="2">8</td></tr> <tr><td>Bronze medalist</td><td>1</td></tr> <tr><td></td><td>0</td></tr> </table>	Final		7		Gold medalist	3	Silver medalist	2	Third place		8		Bronze medalist	1		0
Final																	
7																	
Gold medalist	3																
Silver medalist	2																
Third place																	
8																	
Bronze medalist	1																
	0																
Vorlage:TOC tab	Set team-width to the desired width in pixels. (Default is 170)																
Vorlage:TOC tab	Set score-width to the desired width in pixels.																

Parameter name	Description
	(Default is 30)
Vorlage:TOC tab	Setting <code> widescore=yes</code> is basically equal to <code> score-width=40</code> . Provided for compatibility. Ignored if <code>score-width</code> is set.
Vorlage:TOC tab	Set <code>score-boxes</code> to the desired number of score boxes per match. (Default is 1). The number can be followed by <code>+ sum</code> , which will add one more score box with the sum of all the others. For examples, see test case 5 and test case 6 .
Vorlage:TOC tab	Set <code> template=yes</code> if used to create a template for a specific game (add V.T.E. link using Vorlage:TI).
Vorlage:TOC tab	Set <code> flex_tree=yes</code> to make the brackets more compact. That is, to have less space between matches of the same round.

Node Functions

Vorlage:Ombox

For greater customization, node functions may be added to the parameter usually used for providing match information such as dates and location. Simply insert `node_function{function name}` in the appropriate location. A demonstration of most of the node functions can be found at [RoundN/testcases/4](#).

- **orphan** - Current node is disconnected from all other nodes (no lines will be drawn). One practical use for this may be when the winners of the previous round advance to a different tournament instead of playing each other but the losers still play a consolation match for 3rd place, as per [this discussion](#).

For the next three node functions, the parameters usually used for team names and scores should be omitted if these node functions are used.

- **line** - Current node is omitted and replaced with a horizontal line. Text may be displayed above this line via `node_function{line(text)}` (at some point, the preferred format would be `node_function{line}text` to match the form of the canvas function though backwards compatibility would probably be maintained). If [curly brackets](#) are desired in the text, make sure to escape them with `\`.
- **bridge** - Current node is omitted and replaced with a vertical line.
- **canvas** - Current node is replaced with whatever you want via `node_function{canvas}anything`



- **heading** - Not yet implemented. Planned node function with the form `node_function {heading(name)}date/location`. Makes a round name heading like for the `Consol` parameter, but may be placed anywhere, as per the "Elimination Rounds" of `RoundN/testcases/6` (which currently renders the planned output of this function without the functions).

Undocumented features

Alas `User:Codehydro` seriously overbuilt this module and never found the time to document even half the features available. Check out the following examples which may contain some advanced features: `Spezial:PrefixIndex/Module talk:RoundN/testcases`

Partial List of undocumented params

- `no_column_head`
- `short_brackets`
- `branch_upwards`

Note that some of these features may not have been documented due to incomplete implementation.

```
local p = {
  RD = {
    'Quarter-finals',
    'Semi-finals',
    'Final',
    'Third place'
  },
  bgColor = {head = {'#f2f2f2', 'gold', 'silver', '#C96', '#f9f9f9'}},
  reuseStr = {},
  saveStr = function(self, name, ...)
    if not self.reuseStr[name] then
      self.reuseStr[name] = table.concat{...}
    end
    return self.reuseStr[name]
  end
end
}

--Provides a convenient naming shortcut up to {{#invoke:RoundN|N512}} = {{invoke:
for columns = 1, 9 do
  local N = math.pow(2, columns)
  p['N' .. N] = function(frame)
    return p.main(frame.args, columns)
  end
  p['n' .. N] = p['N' .. N]--to make case insensitive
end

--saves memory and avoids errors when using a nil as a table by providing a tempo
p.nilAsTab = {
  __index = function(t, i)
    return setmetatable({}, setmetatable(p.nilAsTab, {__index = {t =
  end,
  __newindex = function (pt, pi, v) --store new values in actual table rath
    rawset(p.nilAsTab.t, p.nilAsTab.i, {})[p.nilAsTab.i][pi] = v
    setmetatable(p.nilAsTab.t[p.nilAsTab.i], {__call = p.nilAsTab.__c
```

```

        end,
        __call = function(t, i)
            return t and rawget(t, i)
        end
    }
    --never assign a value to these or they will stop being empty
    local infiniteEmpty = setmetatable({}, {__index = setmetatable({}, p.nilAsTab), p
    local callableEmpty = setmetatable({}, p.nilAsTab)

    local rowNum, head, m, col, tab, esc = {}, {}, {num = 1, phase = 0, bold = infin
        bs = require'Module:Escape', --backslash
        comma = [['(%([^\,]*)|([^\%])*)']] = '%1|@!#|%2', --escape commas in ()
    }
    local nodeFunc = {
        scanPattern = function(self, args, step)
            self.pattern = nil
            if args[step] then
                self.pattern, self.nonFunc = string.match(esc.bs:text(args[step])
            end
            if self.pattern then
                for k, v in pairs(esc.comma) do
                    self.pattern = self.pattern:gsub(k, v)
                end
                self.nonFunc = self.nonFunc and esc.bs:undo(self.nonFunc)
                self.pattern = mw.text.split(self.pattern, '%s*','%s*')
                for k, v in ipairs(self.pattern) do
                    local func, arg = string.match(v, '^(%w+)%?(?([^\%]
                    if func and self[func] and self[func].main then
                        self.pattern[k] = func
                        if arg then
                            for x, y in pairs(esc.comma) do
                                arg = esc.bs:undo(arg):gsub(y, v)
                            end
                            self[func].arg = self[func].arg & arg
                            self[func].arg[m.num] = arg
                        end
                    end
                end
            end
            return self.pattern
        end,
        helper = {
            topBranch = function()--node is top of fork if top is 0
                return (m.num - col.top) % 2
            end,
            addText = function(text)
                if text and text ~= '' then
                    tab.r:wikitext(text)
                end
            end
        },
        line = {--this node is omitted and replaced with a line
            main = function(x)
                local h = p.getNodeFunc()
                if m.available then
                    local text, topId, isTop, notTop = h.line.arg[m.num]
                    isTop = topId == 0
                    notTop = {[isTop and 1 or 0] = p.reuseStr.solid}
                    for k = 0, 1 do
                        tab.r = rowNum[m.r + k * 4]:tag'td'
                            :css(notTop[k] and
                                {[isTop and 'border-top'
                                    or {}]
                            )
                end
            end
        }
    }

```

```

                                :attr{
                                    rowspan = ({[0] = 4, 2})
                                    colspan = p.colspan
                                }
                                h.addText(text or h.nonFunc)
                                text = nil
                            end
                        end
                    else
                        m.available = false
                        return nil
                    end
                end
            return x
        end
    },
    bridge = {--Draw a line to the neighboring node in the same column that
        main = function(x)
            local h = p.getNodeFunc()
            h.bridge.lay[col.c][m.num - col.top + 1 + (h.topBranch())
            h.addText(nonFunc)
            return x
        end,
        lay = setmetatable({}, p.nilAsTab)
    },
    canvas = {--Merges all cells in node. Content will be the next parameter
        main = function(x)
            local h = p.getNodeFunc()
            if m.available then
                tab.r = rowNum[m.r]:tag'td'
                :attr{
                    rowspan = 6,
                    colspan = p.colspan
                }
                h.addText(h.nonFunc)
                m.available = false
                return x
            else
                return nil
            end
        end
    },
    orphan = {--sets a flag for skipMatch to be set by p._main
        main = function(x)
            p.getNodeFunc().orphan.num = m.num
            return x
        end
    },
    skipAllowed = {--table of supported node functions when node is skipped
        bridge = true,
        canvas = true
    }
}

setmetatable(nodeFunc.helper, {__index = nodeFunc})
function p.getNodeFunc()
    return nodeFunc.helper
end

local function newRow(bodyRow)
    local first = p.flex_tree.merge and mw.clone(p.flex_tree.cell) or p.flex_
    tab.r = tab:tag'tr'
        :node(first)
    if bodyRow then
        table.insert(rowNum, bodyRow, tab.r)
        if p.flex_tree.merge then

```

```

        rowNum[bodyRow].first = first
        rowNum[bodyRow].first.unchanged = true
    end
end
end
local function drawHead(text, row3rd)
    local td = (row3rd and rowNum[row3rd]:tag'td':attr{rowspan = 2}
    or head.row:tag'td')
    :attr{colspan = p.colspan}
    if text ~= 'omit_label' then
        td:wikitext(text):css{
            ['text-align'] = 'center',
            border = '1px solid #aaa',
            background = p.bgColor.head
        }
    end
end
end
local function spacer(width)
    tab.r:tag'td'
        :attr{width = width}
        :wikitext(p.no_column_head and ' ' or '&nbsp;')
end
end
local function dpBox(v, r)
    p.dpBoxBase = p.dpBoxBase or mw.html.create'td':attr{rowspan = 2, colspan = 2}
    if not v then
        p.dpBoxEmpty = p.previewnumbers and mw.clone(p.dpBoxBase) or p.dpBoxBase
        rowNum[r]:node(p.dpBoxEmpty)
    else
        rowNum[r]:node(mw.clone(p.dpBoxBase):wikitext(v))
    end
end
end
p.scoreWasher = {
    numberFormat = '%-?%d+%.?%d*',
    main = function (self, s)
        if s then
            for _, cycle in ipairs(self.cycles) do
                s = s:gsub(unpack(cycle))
            end
            if p.scoreSumBox and self.plus then
                local t = 0
                for _, part in ipairs(mw.text.split(s, self.plus)) do
                    t = t + (tonumber(part:match('%-?%d+%.?%d*')) or 0)
                end
                return t
            end
            return tonumber(s:match(self.numberFormat)) or math.huge
        end
        return 0
    end,
    spin = function(self, v)
        table.insert(self, v)
        return self
    end,
    load = function (self, cycle)
        local wash, rinse = 0, {spin = self.spin}
        for v in cycle:gfind('%([[^%(%)]]-)%') do
            if v == '_plus_' then
                self.plus = v
                rinse:spin(v)
                cycle = cycle:gsub('%(_plus_)',' ', 1)
            end
        end
    end
end
```

```
                else
                    wash = wash + 1
                    rinse:spin('%'):spin(wash)
                end
            end
            table.insert(self.cycles, {esc.bs:undo(cycle, '%')}, table.concat
end,
init = function(self, setting)
    self.cycles = {original = setting}
    for cycle in (setting and esc.bs:text(setting) or '{<.->} {[^%d]}')
        self:load(cycle)
    end
end,
sum = function (clean)
    local sum = {0, 0}
    for _, box in ipairs(clean) do
        for team, score in ipairs(box) do
            sum[team] = sum[team] + score
        end
    end
    return unpack(math.max(unpack(sum)) == math.huge and {'&mdash;'},
end
}

local function boldWin(s1, s2)
    return setmetatable(
        p.bold and s1 ~= s2 and (math[({'min', 'max'})[p.bold]](s1, s2) =
        p.nilAsTab
    )
end

local function maxSpan(span, start, rows)
    return math.min(span, math.max(0, rows - start + 1))
end

--in case of templates like RDseed need padding value
p.teamBoxPadding = function()
    return '.6ex'
end
p.teamBoxPadTab = {padding = '0 ' .. p.teamBoxPadding()}
p.teamBoxNormal = {border = '1px solid #aaa', background = p.bgColor[4]}
local function teamBox(v, r, f)
    if p.flex_tree.merge and not v and f.phase == 2 then
        for i = -2, 0 do
            if rowNum[r + i].first.unchanged then
                rowNum[r + i].first.unchanged = nil
                rowNum[r + i].first:node(p.unflex_div)
            end
        end
        tab.r:attr{rowspan = 4}:css[['vertical-align'] = 'center']
    else
        if not p.bold then
            --backwards compatability (wikitemplates bold each arg individual)
            local hasBold, b = tostring(v):gsub("([^\']*)'([^\']*)",
            if b == 1 then
                v = hasBold
            end
        end
        end
        local cell
        if f[1] then
            cell = f.sumBox and f.sumBox[1] and
            {padding = f.sumBox[1]}
            or {'border-left' = f.borderLeft}
            cell['text-align'] = v and f[1]
        end
    end
end
```



```
        'no_column_head',
        'short_brackets',
        'branch_upwards'
    }) do
        if args[v] and (p[v] == nil or type(p[v]) == 'boolean') then
            p[v] = args:clean(v) == 'yes' or args[v] == 'true'
        end
    end
end
p.namespace = mw.title.getCurrentTitle().namespace
p.previewnumbers = p.namespace ~= 0 and p.previewnumbers
p.scoreWasher:init(args['score-clean'])
p.scoreWasher.demo = args.demoWash and tonumber(args:clean('demoWash', {
p.scoreSumBox = args['score-boxes'] and args['score-boxes']:match('%d ?%+
p.bold = ({low = 1, high = 2})[args:clean('bold_winner')] or p.scoreSumBo
local sumBox = p.scoreSumBox and 1 or 0
p.scoreBoxes = (tonumber(args:clean('score-boxes', {pattern = '%D'})) or
p.scoreSumBox = p.scoreBoxes > 0 and p.scoreSumBox or nil
local boxStyle = p.scoreBoxes > 1 and
    (p.scoreSumBox and
        setmetatable(
            {{}, [p.scoreBoxes] = {'0 lex'}},
            {__call = function(t, i) if t[i] then return nil
        )
        or setmetatable(
            {},
            {__call = function() return 0 end}
        )
    )
    or setmetatable({}, {__call = function() return nil end})
p.colspan = p.scoreBoxes > 0 and (p.scoreBoxes + 1) or nil
local nodeArgs = {
    score = p.scoreBoxes - sumBox,
    team = {offset = 1 + p.scoreBoxes - sumBox}
}
nodeArgs.all = 1 + nodeArgs.team.offset * 2
nodeArgs.tableSum = {
    __add = function(v, t)
        if #t == 3 then
            return v + nodeArgs.all
        end
        local s = v
        for i, n in ipairs(t) do
            s = s + n
        end
        return s--[[ + (p.scoreSumBox and #t == 3 and -2 or 0) -
    end
}
nodeArgs.team[1] = 1--constant to be replaced later by new param
nodeArgs.team[2] = nodeArgs.team[1] + nodeArgs.team.offset
nodeArgs.blank = setmetatable({}, nodeArgs.tableSum)
p.unflex_div = mw.html.create'div'
        :css{overflow = 'hidden', height = 'lex'}
        :wikitext'&nbsp;'
p.flex_tree = setmetatable({}, {__index = {
    merge = p.flex_tree and p.scoreBoxes == 0,
    wt = p.flex_tree and '' or '&nbsp;',
    cell = mw.html.create'td'
        :node(not p.flex_tree and p.unflex_div or nil)
    })
}})
if args:clean'scroll_height' then
    local fontSize, fontUnit = args.style and args.style:match('font
    if fontSize then
        local units = {
            em = 1,
```

```
                ex = 2,  
                ['%'] = 0.01  
            }  
            fontSize, fontUnit = {fontSize * fontUnit}  
        end  
end  
tab  
    :cssText(table.concat{args.scroll_height and 'padding' or 'margin'  
    :attr{cellpadding = 0, cellspacing = 0}  
if not p.no_column_head then--headings row  
    newRow()  
    head.row = tab.r  
    :css{['white-space'] = args.scroll_height and 'nowrap'}  
    newRow()  
else  
    tab.r = tab:tag'tr'  
    tab.r:tag'td'  
end  
local sp = {--set column widths  
    args['team-width'] or 170,  
    p.widescore and 40 or 30,  
    p.short_brackets and 6 or 15,  
    p.short_brackets and 4 or 20  
}  
local scoreWidth = args:clean('score-width', {pattern = '[^%d;]'}) and mw  
scoreWidth[1] = tonumber(scoreWidth[1], 10)  
if p.scoreSumBox and #scoreWidth ~= 1 then  
    local _scoreWidth = {}  
    for k = 1, p.scoreBoxes - 1 do  
        _scoreWidth[k] = tonumber(scoreWidth[k], 10) or math.ceil  
    end  
    setmetatable(scoreWidth, _scoreWidth)  
end  
if p.template or p.article_include then  
    p.template = mw.title.new(args.name)  
    p.templateFixedName = (p.template.namespace == 0 and not p.artic  
end  
p.template = p.template and mw.title.new(args:clean('name', {pattern = '  
local head_br = {  
    count = 0,  
    compare = function (self, text)  
        if text and args.scroll_height then  
            local _, count = text:gsub('<br[ >/]', '%1')  
            self.count = math.max(self.count, count)  
        end  
        return text  
    end  
end  
}  
p.branch_upwards = p.branch_upwards and 0  
for k = 1, p.cols do  
    if k > 1 then  
        spacer(sp[3])  
        spacer(sp[4])  
        if not p.no_column_head then  
            head.row:tag'td':attr{colspan = 2}  
        end  
    end  
    spacer(sp[1])  
    for s = 1, p.scoreBoxes do  
        spacer(#scoreWidth == 1 and scoreWidth[1] or scoreWidth[4  
    end  
    if not p.no_column_head then  
        head.wt = head_br:compare(args:clean('RD' .. k, {pattern  
        or p.RD[#p.RD + k - p.tCols - 1]
```

```
        or ('Round of ' .. math.pow(2, p.tCols - k + 1))
      drawHead(
        k == 1 and p.template and mw.getCurrentFrame():ex
          title = 'navbar-header',
          args = {head.wt, p.templateFixedName}
        } or head.wt
      )
    end
  end
  sp.row = tab.r
  col.tot = math.pow(2, p.tCols - 1)
  local step, bump, bumpBase, rows = 1, 0, mw.html.create'td':attr{colspan
  args.line_px = table.concat{args:clean('line_px') or 3, args.line_px ~=
  tab.line = {--reduces concats and 'or' statements
    {
      [true] = args.line_px,
      [false] = 0
    },
    args.line_px:rep(2):gsub('%a(%d)', '%1 %2', 1)
  }
  p['3rdplace'] = p.tCols == p.cols and (p['3rdplace'] or p.cols > 3 and r
  if p['3rdplace'] then
    p.textThird = args.Consol or args['RD' .. (p.cols + 1)] or p.RD[4
    local no3rdText = p.no_column_head or p.textThird and p.textThird
    rowNum.third = math.max(math.pow(2, p.branch_upwards and -3 or p
  end
  for r = 1, rowNum.third or rows do
    newRow(r)
  end
  p.saveStr('solid', tab.line[1][true], ' solid')
  p.cornerDiv = mw.html.create'div':css{height = tab.line[1][true], ['borde
  for c = 1, p.cols do
    col.c = c
    local bumps = bump
    if c > 1 then
      col.tot = col.tot + math.pow(2, p.tCols - c)
      if p.branch_upwards then
        bumps = 0
        rowNum[1]:tag'td':attr{rowspan = 4}
      else
        rowNum[1]:node(c < p.cols and
          mw.clone(bumpBase):attr{rowspan = bump}
          or p.no_column_head and p.template and
            mw.html.create'td':wikitext(mw.getCurrent
              title = 'navbar-header',
              args = {'', p.templateFixedName}
            ))
        )
      end
    end
  end
  col.top = m.num
  p.span = p.tCols > c and bump * 2 or p.branch_upwards or math.max
  col.show3rd = p['3rdplace'] and c == p.tCols and rowNum.third
  local colorFinal, bumpMid = p.color and c == p.tCols, p.span > 0
  for r = 1, col.show3rd or rows, 2 do
    m.r = r + bumps
    if col.show3rd or rowNum[m.r] and m.num <= col.tot then
      if m.phase == 0 then
        m.showBox = setmetatable({1, nodeArgs.tee
          if nodeFunc:scanPattern(args, step) then
            nodeFunc.called = {}
            m.available = true
          else
            m.available = nil
          end
        }
      end
    end
  end
end
```

```
end
end
if skipMatch[m.num] then
  if m.phase == 0 then
    if nodeFunc.pattern then
      for x, y in ipairs(nodeFunc.pattern) do
        if nodeFunc.skipMatch[x] then
          nodeFunc.skipMatch[x] = true
        end
      end
    end
    end
    local canvas = nodeFunc.pattern and (nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern)
  elseif m.phase == 2 then
    if nodeFunc.pattern and (nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern) then
      step = step + 1
    end
    m.num = m.num + 1
    step = step + (p.omit_blanks and 1 or 0)
    bumps = bumps + (col.show3rd and 1 or 0)
  end
elseif m.phase == 0 then
  if nodeFunc.pattern then
    for x, y in ipairs(nodeFunc.pattern) do
      if nodeFunc[y] and nodeFunc.called[y] then
        nodeFunc.called[y] = true
      end
    end
    end
    if m.available == false then
      m.showBox = nodeArgs.blanks
      step = step + 1
    end
  end
end
if m.showBox[1] then
  if col.show3rd then
    col.show3rd = (m.num - col.show3rd)
    if col.show3rd == 2 then
      if p.textThird:match(' ') then
        p.textThird = ' '
      end
      if rowNum[rows + col.show3rd] then
        rowNum[rows + col.show3rd] = ' '
      end
    end
    if p.tCols == 1 then
      bumps = p.tCols
    elseif p.branch_t then
      r = 7
      bumps = p.tCols
    end
    m.r = r + bumps
    if p.textThird then
      drawHead(m.r, col.show3rd)
      bumps = bumps + 1
      m.r = r + bumps
    end
  end
end
end
dpBox(nodeFunc.pattern and nodeFunc.pattern[m.r + (canvas or 0)]:tag'f' or nodeFunc.pattern)
if p.previewnumbers then
  rowNum[m.r].nodes[#rowNum[m.r]] = nodeFunc.pattern[m.r + (canvas or 0)]:tag'div'
```



```

teamBox(r
end
end
end
end
end
if m.phase == 2 then
col.show3rd = col.show3rd ~= 2 and
if p.scoreWasher.demo and p.score
table.insert(m.bold.clear
return table.concat{
'Score data for n
mw.dumpObject{sc
'<table>',
tostring(sp.row)
tostring(rowNum[n
tostring(rowNum[n
tostring(rowNum[n
}
end
if nodeFunc.orphan.num == m.num t
skipMatch[m.num] = 'orpha
end
step = step + m.showBox
m.num = m.num + 1
if bump > 0 and rowNum[m.r + 2] a
bumps = bumps + p.span
rowNum[m.r + 2]:node(bump
end
r = r + (col.show3rd or bump)
end
end
m.phase = (m.phase + 1) % 3
end
end
if p.cols > c then--draw lines to next round
p.unit = bump + 3
bump = 3 * math.pow(2, c) - 3
bumps = p.branch_upwards and 4 or (p.unit + 1)
rowNum[1]
:tag'td':attr{rowspan = bumps}
if not p.branch_upwards then
rowNum[1]:tag'td'
:attr{rowspan = (p.branch_upwards or bump
:css(nodeFunc.bridge.lay[c](0) and
{'border-right' = p.reuseStr.sc
or {}
)
end
col.n = 0
for r = bumps + 1, rows, p.unit * 2 do
tab.r = rowNum[r]:tag'td'
local interval = ((r - bumps - 1) / (p.unit * 2))
if interval % 2 == 0 then
--col.t and col.t2 control whether lines
col.t = col.t2 or skipMatch[col.tot + col
col.n = col.n + 2
col.t2 = skipMatch[col.tot + col.n / 2 +
if col.t == 0 then
tab.r
:attr{rowspan = maxSpan(p
:css(skipMatch[col.tot +
border = p.reuseStr
['border-left' =
})

```

```

else
    tab.r
        :attr{rowspan = maxSpan(p
        :cssText(col.t == 2 and
            p:saveStr('topRig
            or col.t == 1 and
                p:saveStr
                or 'verti
            )
            or nil
        )
        :node(col.t == 1 and inte
rowNum[r + (p.branch_upwards and
        :attr{rowspan = maxSpan(p
        :cssText(col.t == 1 and
            p:saveStr('bttmRe
            or col.t == 2 and
                p:saveStr
                or 'verti
            )
            or nil
        )
        :node(col.t == 2 and inte
    end
    col.t = {
        col.t < 3,
        rowNum[r + p.unit * 5] and col.t2
    }
    rowNum[r + (p.branch_upwards or p.unit)]
        :attr{rowspan = maxSpan(p.unit *
        :css(interval == 0 and (col.t[1]
            ['border-width'] = table
            ['border-style'] = 'solid
        } or {})
    else
        tab.r
            :attr{rowspan = maxSpan(p.unit *
            :css(nodeFunc.bridge.lay[c](col.r
                {'border-right'] = p.re
                or {}
            )
        end
    end
end
end
local lock_height = (head_br.count or 0) + 1
return args.scroll_height and
    mw.html.create'div'
        :cssText'border-bottom:1px solid #eee;display:inline-bloc
        :node(not (p.scroll_head_unlock or p.no_column_head) and
            :css{
                overflow = 'hidden',
                height = lock_height * 1.4 + 1.6 .. 'em',
                ['border-bottom'] = 'inherit',
                ['margin-right'] = '17px'
            }
        :node(mw.clone(tab))
    )
:tag'div'
:css{
    ['overflow-y'] = 'scroll',
    ['max-height'] = tonumber(args.scroll_he
}
:node(not (p.scroll_head_unlock or p.no_column_he
```



```

tab:css{['margin-top'] = math.floor(-10 *
or tab

        )
        :done()
    or tab
end

--[[local standard = {
    'beta' = {
        bold_winner = 'high',
        omit_blanks = 'yes',
        auto_3rd = 'yes'
    }
}]--]]
function p.main(frame, columns)
    local args = require'Module:Arguments'.getArgs(frame, {trim = false})
    args.columns = args.columns or columns
    return p._main(args)
end

function p.seed(frame)
    local parent = frame:getParent() or frame
    local function arg(k, alt)
        return parent.args[k] or frame.args[k] or alt
    end
    local padding, width = arg(2, p.teamBoxPadding()), arg(3, arg('widescore
padding = tonumber(padding) and tonumber(padding) .. 'px' or padding
width = tonumber(width) and tonumber(width) .. 'px' or width
return mw.html.create'div'
        :css{
            margin = ('-1px %s -1px -%s'):format(padding, padding),
            float = 'left',
            ['background-color'] = p.bgColor.head,
            border = '1px solid #aaa',
            ['text-align'] = 'center',
            width = width
        }
        :wikitext(arg(1, '&nbsp;'))
end

return p
```