

Package ‘ggkodom’

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Title Visualize Individual Longitudinal Trajectories

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Description A 'ggplot2'-based toolkit for visualizing individual-level longitudinal trajectories. Creates linear kodom plots, circular kodom plots, heatmaps, and state-ribbon charts for repeated-measures data. Each subject gets its own visual lane with measurements colored by value, revealing patterns across subjects and time. The circular variant resembles the Kodom flower.

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coord_kodom_periodic *Polar coordinate system for periodic Kodom plots*

Description

A convenience wrapper around `ggplot2::coord_polar()` with defaults appropriate for `geom_kodom_periodic()`: `theta = "x"` (time maps to angle), `start = pi/2` (`x = 0` at 12 o'clock), and `direction = -1` (clockwise). Pass `clockwise = FALSE` for a counter-clockwise layout.

Usage

```
coord_kodom_periodic(clockwise = TRUE)
```

Arguments

`clockwise` Logical. TRUE (default) places time clockwise from the top, matching the convention of most clock and calendar displays.

Value

A `ggplot2::coord_polar()` coordinate object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = visit_month, id = subject_id, colour = hba1c)) +
  geom_kodom_periodic(period = 12) +
```

```

scale_x_continuous(breaks = 1:12, labels = month.abb, limits = c(0, 12)) +
scale_colour_kodom() +
coord_kodom_periodic() +
theme_kodom_periodic()

```

| | |
|-------------------|--|
| geom_kodom_branch | <i>Branching swimlane plot for observed paths and counterfactual predictions</i> |
|-------------------|--|

Description

Draws one horizontal path per subject for the observed trajectory, then fans out into sub-lanes — one per medication or intervention arm — for predicted (counterfactual) trajectories. The branching time may differ across subjects.

Usage

```

geom_kodom_branch(
  mapping = NULL,
  data = NULL,
  stat = StatKodomBranch,
  position = "identity",
  ...,
  sort_by = "none",
  n_max = Inf,
  lane_width = 1,
  branch_fraction = 0.7,
  show_points = TRUE,
  show_fork = TRUE,
  na.rm = FALSE,
  show.legend = NA,
  inherit.aes = TRUE
)

```

Arguments

| | |
|----------|---|
| mapping | Set of aesthetic mappings created by <code>ggplot2::aes()</code> . |
| data | A data frame. If NULL, inherits from the plot. |
| stat | The stat to use. Defaults to <code>StatKodomLine</code> . |
| position | Position adjustment, almost always "identity". |
| ... | Other arguments passed to <code>ggplot2::layer()</code> . |
| sort_by | Lane ordering. One of "none" (default), "mean", "mean_asc", "first", "last" — all refer to the colour variable. |
| n_max | Maximum number of subjects to display. A random sample is taken when exceeded. Default Inf (all subjects). |

| | |
|-----------------|--|
| lane_width | Positive numeric. Vertical distance between adjacent subject lanes. Default 1. |
| branch_fraction | Fraction of lane_width devoted to prediction sub-lanes. Default 0.7. With K arms the sub-lane step is branch_fraction / K. |
| show_points | If TRUE (default), draws a point at every observation. Set to FALSE, or map shape = NA / size = 0, to suppress points. |
| show_fork | Logical. If TRUE (default), draws a vertical fork connector at each subject's branch point. |
| na.rm | If TRUE, silently remove rows with missing required aesthetics. |
| show.legend | Logical. Should this layer appear in the legend? |
| inherit.aes | If FALSE, overrides the default aesthetics. |

Details

Data format. Supply NA in the medication column for all observed rows (pre- and post-branch). Supply a non-NA arm label (e.g. "DrugA") for every predicted row. The stat replaces NA with "observed" in its output so that the linetype scale receives a clean string for every row.

Linetype. Map linetype = <arm_column> in aes() **and** supply a scale_linetype_manual() so that the legend appears and the linetypes are exactly what you want. The stat converts NA (observed rows) to the string "observed" before the scale is applied, so target that key explicitly:

```
aes(linetype = arm, medication = arm) # both point to the same column
scale_linetype_manual(
  values = c("observed" = "solid", "DrugA" = "dashed", "DrugB" = "dotted")
)
```

Fork connector. A short vertical segment is drawn at each subject's branch point (the first x that appears in a predicted arm), connecting the observed lane to the topmost arm. Suppress with show_fork = FALSE.

Lane layout. Each subject occupies a primary band of width lane_width. Within that band the observed path is at the base; each prediction arm sits at an equal sub-lane fraction above it controlled by branch_fraction. With two arms and branch_fraction = 0.7, arm 1 is at 0.35 * lane_width above the base and arm 2 is at 0.70 * lane_width, leaving 30% clearance before the next subject.

Y-axis labels. Subject IDs can be added by setting custom breaks:

```
scale_y_continuous(
  breaks = seq_len(n_subjects) * lane_width,
  labels = subject_ids
)
```

Value

A ggplot2 layer object.

Aesthetics

- `x` — time (numeric or Date)
- `id` — subject identifier; determines the primary lane position
- `colour` — measured value mapped to colour (interpolated along path)
- `medication` — NA for observed rows; a character/factor arm label for predicted rows. Each unique non-NA value becomes one sub-lane.
- `size`, `linewidth`, `alpha`, `shape`, `stroke` — standard path/point aesthetics. `linetype` is set by the stat (medication name / "observed").

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(
  x = time, id = subject_id,
  colour = hba1c, linetype = arm, medication = arm
)) +
  geom_kodom_branch(sort_by = "mean", lane_width = 2) +
  scale_linetype_manual(
    values = c("observed" = "solid", "DrugA" = "dashed", "DrugB" = "dotted")
  ) +
  scale_colour_kodom() +
  theme_kodom()
```

geom_kodom_circular *Circular ("Kodom") swimlane plot for longitudinal trajectories*

Description

Draws a radial plot where each subject occupies an angular spoke and time increases outward from the center. Measurements are encoded as a colour gradient along each radial path, interpolated between consecutive observations. The layout resembles a Kadam flower (*Neolamarckia cadamba*), giving the package its name.

Usage

```
geom_kodom_circular(
  mapping = NULL,
  data = NULL,
```

```

stat = StatKodomCircular,
position = "identity",
...,
sort_by = "none",
n_max = Inf,
gap_fraction = 0.15,
inner_fraction = 0.3,
direction = 1L,
show_points = TRUE,
reference_rings = c(0),
na.rm = FALSE,
show.legend = NA,
inherit.aes = TRUE
)

```

Arguments

| | |
|-----------------|--|
| mapping | Set of aesthetic mappings created by <code>ggplot2::aes()</code> . |
| data | A data frame. If NULL, inherits from the plot. |
| stat | The stat to use. Defaults to <code>StatKodomCircular</code> . |
| position | Position adjustment, almost always "identity". |
| ... | Other arguments passed to <code>ggplot2::layer()</code> . |
| sort_by | Lane ordering (angular order). One of "none" (default), "mean", "mean_asc", "first", "last". |
| n_max | Maximum number of subjects to display. Default Inf. |
| gap_fraction | Fraction of the full circle left empty as a visual gap at the ordering seam. Default 0.15. |
| inner_fraction | Fraction of the time range used as a hollow inner buffer so short-follow-up subjects remain visible. Default 0.3. |
| direction | 1L = clockwise (default), -1L = counter-clockwise. |
| show_points | If TRUE (default), draws a point at every observation. Set to FALSE, or map shape = NA / size = 0, to suppress points. |
| reference_rings | Numeric vector of time points where concentric reference rings should be drawn behind the data paths. By default, draws a ring at 0 (baseline). Set to NULL to suppress rings. |
| na.rm | If TRUE, silently remove rows with missing required aesthetics. |
| show.legend | Logical. Should this layer appear in the legend? |
| inherit.aes | If FALSE, overrides the default aesthetics. |

Details

Unlike the original `coord_polar()` variant in the `archive` package, this geom performs the polar-to-Cartesian transform inside the stat and renders in ordinary Cartesian space, so all `ggplot2` scales, themes, and facets work normally. Use `coord_fixed()` to preserve the circular shape.

Value

A ggplot2 layer object.

Aesthetics

Required aesthetics are shown in **bold**. `size` and `linewidth` are intentionally independent: each controls a different graphical element.

- `x` — time variable (numeric); mapped to radial distance
- `id` — subject identifier; mapped to angular position
- `colour` — color of both the connecting path and the point border
- `fill` — point interior color for filled shapes (21–25)
- `size` — **point size only**; set to NA or 0 to suppress points
- `linewidth` — **path width only**
- `alpha` — transparency applied to both path and points
- `shape` — point shape (default 19). Set to NA to suppress points.
- `stroke`, `linetype` — point border width / path line type

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, colour = hba1c)) +
  geom_kodom_circular(sort_by = "mean", gap_fraction = 0.1) +
  scale_colour_kodom() +
  coord_fixed() +
  theme_kodom_circular()
```

Description

Divides the time axis into equal-width bins and fills each (subject × bin) cell with an aggregate of the measured value. Each subject occupies one horizontal lane. Use this layout when the cohort is large or when you prefer a compact, aligned grid over individual paths.

Usage

```
geom_kodom_heatmap(
  mapping = NULL,
  data = NULL,
  stat = StatKodomHeatmap,
  position = "identity",
  ...,
  sort_by = "mean",
  n_max = Inf,
  bins = 10L,
  breaks = NULL,
  fun = "mean",
  na.rm = FALSE,
  show.legend = NA,
  inherit.aes = TRUE
)
```

Arguments

| | |
|-------------|---|
| mapping | Set of aesthetic mappings created by <code>ggplot2::aes()</code> . |
| data | A data frame. If NULL, inherits from the plot. |
| stat | The stat to use. Defaults to <code>StatKodomHeatmap</code> . |
| position | Position adjustment, almost always "identity". |
| ... | Other arguments passed to <code>ggplot2::layer()</code> . |
| sort_by | Lane ordering. One of "none", "mean" (default), "mean_asc", "first", "last" — all refer to the fill variable. |
| n_max | Maximum number of subjects to display. A random sample is taken when exceeded. Default Inf (all subjects). |
| bins | Number of equal-width time bins. Default 10L. Ignored if breaks is supplied. |
| breaks | Numeric vector of explicit bin boundaries. Overrides bins. |
| fun | Aggregation function per cell. One of "mean" (default), "median", "first", "last", "min", "max". |
| na.rm | If TRUE, silently remove rows with missing required aesthetics. |
| show.legend | Logical. Should this layer appear in the legend? |
| inherit.aes | If FALSE, overrides the default aesthetics. |

Details

Lane ordering is controlled by `sort_by` (defaults to "mean", which places the highest-mean subjects at the top). Time bins can be customised via `bins` (number of equal-width intervals) or `breaks` (explicit boundaries).

Value

A `ggplot2` layer object.

Aesthetics

Required aesthetics are shown in **bold**.

- **x** — time variable (numeric or Date)
- **id** — subject identifier; determines lane position on the y axis
- **fill** — measurement value used for cell color and sorting
- **colour** — tile border color (default "white")
- **linewidth** — tile border width (default 0.25)
- **alpha** — transparency

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, fill = hba1c)) +
  geom_kodom_heatmap(sort_by = "mean", bins = 12) +
  scale_fill_kodom() +
  theme_kodom()
```

geom_kodom_line

Swimlane line plot for longitudinal trajectories

Description

Draws one horizontal colored path per subject. Time maps to **x**, subject identity maps to **id** (which the stat converts to integer lane positions on the y axis), and a measured value maps to **colour**. The colour transitions smoothly between consecutive observations via interpolated sub-segments.

Usage

```
geom_kodom_line(
  mapping = NULL,
  data = NULL,
  stat = StatKodomLine,
  position = "identity",
  ...,
  sort_by = "none",
  n_max = Inf,
  show_points = TRUE,
```

```

na.rm = FALSE,
show.legend = NA,
inherit.aes = TRUE
)

```

Arguments

| | |
|-------------|--|
| mapping | Set of aesthetic mappings created by <code>ggplot2::aes()</code> . |
| data | A data frame. If NULL, inherits from the plot. |
| stat | The stat to use. Defaults to <code>StatKodomLine</code> . |
| position | Position adjustment, almost always "identity". |
| ... | Other arguments passed to <code>ggplot2::layer()</code> . |
| sort_by | Lane ordering. One of "none" (default), "mean", "mean_asc", "first", "last" — all refer to the colour variable. |
| n_max | Maximum number of subjects to display. A random sample is taken when exceeded. Default Inf (all subjects). |
| show_points | If TRUE (default), draws a point at every observation. Set to FALSE, or map shape = NA / size = 0, to suppress points. |
| na.rm | If TRUE, silently remove rows with missing required aesthetics. |
| show.legend | Logical. Should this layer appear in the legend? |
| inherit.aes | If FALSE, overrides the default aesthetics. |

Details

Lane ordering is controlled by `sort_by`. With many subjects, consider suppressing y-axis labels via `theme(axis.text.y = element_blank())`.

Value

A `ggplot2` layer object.

Aesthetics

Required aesthetics are shown in **bold**. `size` and `linewidth` are intentionally independent: each controls a different graphical element.

- `x` — time variable (numeric or Date)
- `id` — subject identifier; determines lane position on the y axis
- `colour` — color of both the connecting path and the point border
- `fill` — point interior color for filled shapes (21–25); no effect on path
- `size` — **point size only**; set to NA or 0 to suppress points
- `linewidth` — **path width only**; does not affect observation points
- `alpha` — transparency applied to both path and points
- `shape` — point shape (default 19). Set to NA to suppress points.
- `stroke`, `linetype` — point border width / path line type

Examples

```

library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, colour = hba1c)) +
  geom_kodom_line(sort_by = "mean", n_max = 50) +
  scale_colour_kodom() +
  theme_kodom()

```

geom_kodom_periodic *Periodic "Star Trail" swimlane plot for longitudinal trajectories*

Description

Draws concentric arcs representing cyclical longitudinal data. Time maps to angle (one full revolution equals one period), and each subject's base radius is determined by its lane rank. To separate successive cycles of the same subject the radius drifts outward slightly as total time increases, forming a star trail or Archimedean spiral.

Usage

```

geom_kodom_periodic(
  mapping = NULL,
  data = NULL,
  stat = StatKodomPeriodic,
  position = "identity",
  ...,
  period = 12,
  spiral_fraction = 0.1,
  inner_fraction = 0.3,
  lane_width = 1,
  sort_by = "none",
  n_max = Inf,
  show_points = TRUE,
  na.rm = FALSE,
  show.legend = NA,
  inherit.aes = TRUE
)

```

Arguments

| | |
|-----------------|---|
| mapping | Set of aesthetic mappings created by <code>ggplot2::aes()</code> . |
| data | A data frame. If NULL, inherits from the plot. |
| stat | The stat to use. Defaults to <code>StatKodomLine</code> . |
| position | Position adjustment, almost always "identity". |
| ... | Other arguments passed to <code>ggplot2::layer()</code> . |
| period | Numeric. Length of one complete cycle (e.g. 12 for months, 24 for hours). Default 12. |
| spiral_fraction | Numeric. Radial expansion per full cycle as a fraction of one <i>original</i> lane width (i.e. before <code>lane_width</code> scaling). 0 keeps cycles on the same ring; 0.1 (default) drifts outward by 10% of one lane per cycle. |
| inner_fraction | Fraction of total lanes used as a hollow inner buffer. Default 0.3. Pair with <code>scale_y_kodom_periodic()</code> to make the hole visible. |
| lane_width | Positive numeric. Multiplier for the radial distance between adjacent subject rings. Default 1 packs rings at unit spacing. Increase (e.g. 3) to spread rings apart so each subject's arc is more legible — particularly useful when using <code>n_max</code> to show a small subset. The hollow center (<code>inner_fraction</code>) is intentionally not scaled so the hole size stays proportional to the cohort, not the spacing. |
| sort_by | Lane ordering. One of "none" (default), "mean", "mean_asc", "first", "last" — all refer to the colour variable. |
| n_max | Maximum number of subjects to display. A random sample is taken when exceeded. Default Inf (all subjects). |
| show_points | If TRUE (default), draws a point at every observation. Set to FALSE, or map shape = NA / size = 0, to suppress points. |
| na.rm | If TRUE, silently remove rows with missing required aesthetics. |
| show.legend | Logical. Should this layer appear in the legend? |
| inherit.aes | If FALSE, overrides the default aesthetics. |

Details

Coordinate system. This geom is designed for use with `coord_polar(theta = "x")`. Use `coord_kodom_periodic()` as a convenient wrapper that sets `start = pi/2` (12 o'clock at $x = 0$) and `direction = -1` (clockwise) by default.

Axis labels. Because x is continuous time, `ggplot2` will automatically expand the limits to cover the entire time range if you use standard scales, which alters the length of a full 360-degree rotation. To make one rotation exactly equal one period, use the included wrapper `scale_x_kodom_periodic()`:

```
scale_x_kodom_periodic(period = 12, breaks = 1:12, labels = month.abb)
```

Value

A `ggplot2` layer object.

| | |
|--------------|----------------------------|
| kodom_colors | <i>Kodom color palette</i> |
|--------------|----------------------------|

Description

Returns colors inspired by the Kadam flower (*Neolamarckia cadamba*): teal (low), gold (mid), red (high). Passing $n > 3$ interpolates between the three anchors via `grDevices::colorRampPalette()`.

Usage

```
kodom_colors(n = 3L)
```

Arguments

`n` Number of colors. 3 returns the anchor set; >3 interpolates.

Value

Character vector of hex color codes.

Examples

```
kodom_colors()
kodom_colors(7)
```

| | |
|-------------------|--|
| scale_color_kodom | <i>Kodom color scale for the color aesthetic</i> |
|-------------------|--|

Description

A ggplot2 color scale using the Kadam flower palette (teal -> gold -> red). Designed to compose with `geom_kodom_line()`, `geom_kodom_heatmap()`, and `geom_kodom_circular()`.

Usage

```
scale_color_kodom(
  colors = kodom_colors(),
  color_breaks = NULL,
  name = ggplot2::waiver(),
  discretize = FALSE,
  ...
)
```

```
scale_colour_kodom(
  colors = kodom_colors(),
  color_breaks = NULL,
```

```

    name = ggplot2::waiver(),
    discretize = FALSE,
    ...
  )

```

Arguments

| | |
|--------------|---|
| colors | Color vector. Defaults to <code>kodom_colors()</code> . |
| color_breaks | Numeric breakpoints anchoring the gradient via <code>scales::rescale()</code> . For <code>discretize = TRUE</code> , each break adds one band: <code>k</code> breaks produce <code>k + 1</code> bands. <code>NULL</code> = evenly spaced. |
| name | Legend title. Defaults to "value". |
| discretize | <code>FALSE</code> (default) = smooth gradient; <code>TRUE</code> = step bands at <code>color_breaks</code> . |
| ... | Ignored. |

Details

Set `discretize = TRUE` to switch from a smooth gradient to solid color bands separated at `color_breaks` — useful when values change slowly and a continuous gradient washes out into a single hue.

Value

A `ggplot2` scale object.

Examples

```

library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, color = value)) +
  geom_kodom_line() +
  scale_color_kodom()

# Discrete bands at clinical thresholds
ggplot(df, aes(x = time, id = subject_id, color = hba1c)) +
  geom_kodom_line() +
  scale_color_kodom(discretize = TRUE, color_breaks = c(5.7, 6.5))

```

| | |
|------------------|--|
| scale_fill_kodom | <i>Kodom fill scale for the fill aesthetic</i> |
|------------------|--|

Description

Identical behavior to `scale_color_kodom()` but targets the fill aesthetic. Intended for use with `geom_kodom_heatmap()`.

Usage

```
scale_fill_kodom(  
  colors = kodom_colors(),  
  color_breaks = NULL,  
  name = ggplot2::waiver(),  
  discretize = FALSE,  
  ...  
)
```

Arguments

| | |
|--------------|---|
| colors | Color vector. Defaults to <code>kodom_colors()</code> . |
| color_breaks | Numeric breakpoints anchoring the gradient via <code>scales::rescale()</code> . For <code>discretize = TRUE</code> , each break adds one band: <code>k</code> breaks produce <code>k + 1</code> bands. <code>NULL</code> = evenly spaced. |
| name | Legend title. Defaults to "value". |
| discretize | <code>FALSE</code> (default) = smooth gradient; <code>TRUE</code> = step bands at <code>color_breaks</code> . |
| ... | Ignored. |

Value

A ggplot2 scale object.

Examples

```
library(ggplot2)  
df <- data.frame(  
  subject_id = rep(1:5, each = 4),  
  time = rep(1:4, 5),  
  visit_month = rep(1:4, 5),  
  value = rep(1:4, 5),  
  hba1c = rep(1:4, 5),  
  arm = rep(c("Treatment", "Control"), c(12, 8))  
)  
ggplot(df, aes(x = time, id = subject_id, fill = value)) +  
  geom_kodom_heatmap() +  
  scale_fill_kodom()
```

`scale_x_kodom_periodic`*X-scale for periodic longitudinal plots*

Description

This is a convenience wrapper around `ggplot2::scale_x_continuous()` that enforces `limits = c(0, period)` and uses `oob = scales::oob_keep`.

Usage

```
scale_x_kodom_periodic(period = 12, breaks = 1:period, ...)
```

Arguments

| | |
|---------------------|--|
| <code>period</code> | The length of one complete cycle (e.g. 12 for months). Must match the period argument passed to <code>geom_kodom_periodic()</code> . Default 12. |
| <code>breaks</code> | Passed to <code>scale_x_continuous()</code> . Default provides integer breaks for the period. |
| <code>...</code> | Additional arguments passed to <code>ggplot2::scale_x_continuous()</code> , such as labels. |

Details

Why is this necessary? To make exactly one cycle span exactly one 360-degree rotation in `coord_polar`, the scale limits *must* be set to the period length (e.g., `c(0, 12)`). However, standard `ggplot2` `scale_x_continuous` will drop any data outside those limits. By setting `oob = scales::oob_keep`, we instruct `ggplot2` to keep the data that exceeds the period. `coord_polar` then natively wraps those out-of-bounds values around the circle, creating beautiful, continuous Archimedean spirals!

Value

A `ggplot2::scale_x_continuous()` object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = visit_month, id = subject_id, colour = hba1c)) +
  geom_kodom_periodic(period = 12) +
```

```
scale_x_kodom_periodic(period = 12, labels = month.abb) +
scale_y_kodom_periodic() +
coord_kodom_periodic() +
theme_kodom_periodic()
```

scale_y_kodom_periodic

Radial scale for periodic Kodom plots

Description

In `coord_polar(theta = "x")`, `ggplot2` sets the center of the plot to the *minimum data y value*, not to zero. Because `geom_kodom_periodic()` stores the hollow-center gap as an offset above zero (`inner_fraction * n_lanes`), the gap is invisible without this scale: the auto-range simply absorbs it.

Usage

```
scale_y_kodom_periodic(expand = ggplot2::expansion(mult = c(0, 0.05)))
```

Arguments

`expand` Passed to `ggplot2::scale_y_continuous()`. Default adds 5% padding beyond the outermost ring and no padding at the center.

Details

This function pins $y = 0$ at the center by setting `limits = c(0, NA)`, so the offset computed by `inner_fraction` becomes a visible donut hole. It should be added to every plot that uses `geom_kodom_periodic()`.

Value

A `ggplot2::scale_y_continuous()` object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = visit_month, id = subject_id, colour = hba1c)) +
  geom_kodom_periodic(period = 12, inner_fraction = 0.3) +
  scale_x_continuous(breaks = 0:11, labels = month.abb) +
```

```
scale_y_kodom_periodic() +
scale_colour_kodom() +
coord_kodom_periodic() +
theme_kodom_periodic()
```

 theme_kodom

Clean theme for ggkodom linear and heatmap plots

Description

Based on `ggplot2::theme_minimal()`: vertical x-axis grid lines mark time positions, horizontal y-axis grid lines are suppressed (they would bisect subject lanes and add clutter). Restrained axis text, wide horizontal color-bar legend. Suitable for `geom_kodom_line()` and `geom_kodom_heatmap()`.

Usage

```
theme_kodom(base_size = 12, legend_position = "top")
```

Arguments

```
base_size      Base font size (default 12).
legend_position One of "top", "bottom", "left", "right", "none".
```

Details

The vertical grid lines can be suppressed or restyled via the usual `ggplot2 theme()` override:

```
+ theme(panel.grid.major.x = element_blank())
```

Value

A `ggplot2::theme()` object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, colour = value)) +
  geom_kodom_line() +
  scale_colour_kodom() +
  theme_kodom()
```

theme_kodom_circular *Theme for circular ggkodom plots*

Description

Fully minimal Cartesian theme for `geom_kodom_circular()`: no axis text, ticks, or grid lines. Reference rings are drawn by the geom itself as annotation layers, so this theme suppresses all panel grid elements.

Usage

```
theme_kodom_circular(base_size = 12)
```

Arguments

`base_size` Base font size (default 12).

Details

Unlike the original `coord_polar()`-based approach, `geom_kodom_circular()` performs its coordinate transformation inside the stat and renders in ordinary Cartesian space. This means `panel.grid.major.y` lines would appear as horizontal rules, not concentric circles — so both major axes are suppressed here.

Value

A `ggplot2::theme()` object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = time, id = subject_id, colour = value)) +
  geom_kodom_circular() +
  scale_colour_kodom() +
  coord_fixed() +
  theme_kodom_circular()
```

theme_kodom_periodic *Theme for periodic Kodom plots*

Description

Designed for use with `geom_kodom_periodic()` and `coord_kodom_periodic()`. Suppresses the radial (y) axis — which shows lane numbers that are not meaningful to readers — while keeping the angular (x) axis so that time labels added via `ggplot2::scale_x_continuous()` are visible around the ring.

Usage

```
theme_kodom_periodic(base_size = 12)
```

Arguments

`base_size` Base font size (default 12).

Value

A `ggplot2::theme()` object.

Examples

```
library(ggplot2)
df <- data.frame(
  subject_id = rep(1:5, each = 4),
  time = rep(1:4, 5),
  visit_month = rep(1:4, 5),
  value = rep(1:4, 5),
  hba1c = rep(1:4, 5),
  arm = rep(c("Treatment", "Control"), c(12, 8))
)
ggplot(df, aes(x = visit_month, id = subject_id, colour = hba1c)) +
  geom_kodom_periodic(period = 12) +
  scale_x_continuous(breaks = 1:12, labels = month.abb, limits = c(0, 12)) +
  scale_colour_kodom() +
  coord_kodom_periodic() +
  theme_kodom_periodic()
```

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