

# Package: cacc (via r-universe)

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**Title** Conjunctive Analysis of Case Configurations

**Version** 0.1.0.9000

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**Description** A set of functions to conduct Conjunctive Analysis of Case Configurations (CACC) as described in Miethe, Hart, and Regoeczi (2008) <[doi:10.1007/s10940-008-9044-8](https://doi.org/10.1007/s10940-008-9044-8)>, and identify and quantify situational clustering in dominant case configurations as described in Hart (2019) <[doi:10.1177/0011128719866123](https://doi.org/10.1177/0011128719866123)>. Initially conceived as an exploratory technique for multivariate analysis of categorical data, CACC has developed to include formal statistical tests that can be applied in a wide variety of contexts. This technique allows examining composite profiles of different units of analysis in an alternative way to variable-oriented methods.

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**Encoding** UTF-8

**Roxygen** list(markdown = TRUE)

**RoxygenNote** 7.2.1

**URL** <https://github.com/amoneva/cacc>

**BugReports** <https://github.com/amoneva/cacc/issues>

**Imports** dplyr, ggplot2, rlang, stats, tibble, tidyr

**Depends** R (>= 2.10)

**LazyData** true

**Repository** <https://amoneva.r-universe.dev>

**RemoteUrl** <https://github.com/amoneva/cacc>

**RemoteRef** HEAD

**RemoteSha** 728cf93fda2f44cb78d92e3a9d7c96e029bb2a97

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cacc	<i>Conjunctive Analysis of Case Configurations</i>
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### Description

Computes a Conjunctive Analysis of Case Configurations (CACC).

### Usage

```
cacc(data, ivs, dv)
```

### Arguments

<code>data</code>	A data frame or a tibble.
<code>ivs</code>	A vector of names of the independent variables, without quotes. Variables must be categorical, either integer, character, or factor.
<code>dv</code>	Name of the dependent variable, without quotes. Variable must be a dichotomous integer or factor with values 0 (absence) and 1 (presence).

### Value

Returns a tibble with the CACC matrix.

### References

Miethe, T. D., Hart, T. C., & Regoeczi, W. C. (2008). The Conjunctive Analysis of Case Configurations: An Exploratory Method for Discrete Multivariate Analyses of Crime Data. *Journal of Quantitative Criminology*, 24, 227–241. <https://doi.org/10.1007/s10940-008-9044-8>

**Examples**

```
cacc(  
  data = onharassment,  
  ivs = c(sex, age, hours, snapchat, instagram, facebook, twitter, name, photos, privacy),  
  dv = rep_victim  
)  
cacc(onharassment, ivs = sex:privacy, dv = rep_victim)  
  
# Syntax with the native R pipe  
onharassment |> cacc(ivs = sex:privacy, dv = rep_victim)
```

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`cluster_sci`*Situational Clustering Index*

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**Description**

Computes a Situational Clustering Index (SCI) to quantify the magnitude of the clustering of observations among dominant profiles in a `cacc_matrix`.

**Usage**

```
cluster_sci(cacc_matrix)
```

**Arguments**

`cacc_matrix` A tibble. The output of the `cacc` function.

**Value**

Returns a numeric value.

**References**

Hart, T. C. (2019). Identifying Situational Clustering and Quantifying Its Magnitude in Dominant Case Configurations: New Methods for Conjunctive Analysis. *Crime & Delinquency*, 66(1), 143-159. <https://doi.org/10.1177/0011128719866123>

**Examples**

```
cluster_sci(cacc(onharassment, ivs = sex:privacy, dv = rep_victim))
```

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cluster_xsq	<i>Chi-Square Goodness-of-Fit Test</i>
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**Description**

Computes a Chi-Square Goodness-of-Fit Test to determine whether there is statistically significant clustering of observations among dominant profiles in a `cacc_matrix`.

**Usage**

```
cluster_xsq(cacc_matrix)
```

**Arguments**

`cacc_matrix` A tibble. The output of the `cacc` function.

**Value**

Returns a list with the Chi-square results. This is the same object returned by the `chisq.test` function from the `stats` package.

**References**

Hart, T. C. (2019). Identifying Situational Clustering and Quantifying Its Magnitude in Dominant Case Configurations: New Methods for Conjunctive Analysis. *Crime & Delinquency*, 66(1), 143-159. <https://doi.org/10.1177/0011128719866123>

**Examples**

```
cluster_xsq(cacc(onharassment, ivs = sex:privacy, dv = rep_victim))
```

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main_effect	<i>Main effect</i>
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**Description**

Computes the main effect that a specific value of a variable produces on the outcome probability in a `cacc_matrix`.

**Usage**

```
main_effect(cacc_matrix, iv, value, summary = TRUE)
```

**Arguments**

<code>cacc_matrix</code>	A tibble. The output of the <code>cacc</code> function.
<code>iv</code>	A single variable name contained in a <code>cacc_matrix</code> .
<code>value</code>	A single numeric or character value the <code>iv</code> specified can take.
<code>summary</code>	Logical. Defaults to TRUE. Whether or not to return the summary statistics for the main effect.

**Value**

When `summary = TRUE`, returns a tibble with summary stats for the main effect. If `summary = FALSE`, returns a tibble containing a single numeric variable, ranging from 0 to 1, containing the main effects of the value of the selected `iv` on the probability of outcome.

**References**

Hart, T. C., Rennison, C. M., & Miethe, T. D. (2017). Identifying Patterns of Situational Clustering and Contextual Variability in Criminological Data: An Overview of Conjunctive Analysis of Case Configurations. *Journal of Contemporary Criminal Justice*, 33(2), 112–120. <https://doi.org/10.1177/1043986216689746>

**Examples**

```
main_effect(
  cacc_matrix = cacc(onharassment, ivs = sex:privacy, dv = rep_victim),
  iv = age,
  value = "15-17"
)
main_effect(
  cacc_matrix = cacc(onharassment, ivs = sex:privacy, dv = rep_victim),
  iv = age,
  value = "15-17",
  summary = FALSE
)
```

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onharassment

*Profiles of 4174 Spanish students*


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**Description**

A dataset containing the demographics, online routines, and self-reported online harassment repeat victimization and offending of 4174 Spanish non-university education students.

**Usage**

```
onharassment
```

**Format**

A data frame with 4174 rows and 12 variables:

**sex** Factor. The students' self-reported sex.

**age** Factor. The students' self-reported age

**hours** Factor. The students' self-reported number of daily hours spent online.

**snapchat** Factor. Whether students report using the social media Snapchat on a daily basis.

**instagram** Factor. Whether students report using the social media Instagram on a daily basis.

**facebook** Factor. Whether students report using the social media Facebook on a daily basis.

**twitter** Factor. Whether students report using the social media Twitter on a daily basis.

**name** Factor. Whether students report using their real names on social media.

**photos** Factor. Whether students report uploading personal photos to social media.

**privacy** Factor. Whether students report restricting their social media access to contacts only.

**rep\_victim** Factor. Whether students report repeatedly suffering online harassment.

**rep\_offender** Factor. Whether students report repeatedly committing online harassment.

**Source**

Moneva, A., Miró-Llinares, F., & Hart, T. C. (2021). Hunter or Prey? Exploring the situational profiles that define repeated online harassment victims and offenders. *Deviant Behavior*, 42(11), 1366-1381. <https://doi.org/10.1080/01639625.2020.1746135>

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plot\_effect

*Density Plot for the Main Effect*

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**Description**

Plots an annotated boxplot and kernel density estimate to visualize the distribution of the main effect that a specific value of a variable produces on the outcome probability in a `cacc_matrix`.

**Usage**

```
plot_effect(cacc_matrix, iv, value)
```

**Arguments**

`cacc_matrix` A tibble. The output of the `cacc` function.

`iv` A single variable name contained in a `cacc_matrix`.

`value` A single numeric or character value the `iv` specified can take.

**Value**

Returns a ggplot object.

## References

Hart, T. C., Rennison, C. M., & Miethe, T. D. (2017). Identifying Patterns of Situational Clustering and Contextual Variability in Criminological Data: An Overview of Conjunctive Analysis of Case Configurations. *Journal of Contemporary Criminal Justice*, 33(2), 112–120. <https://doi.org/10.1177/1043986216689746>

## Examples

```
plot_effect(  
  cacc_matrix = cacc(onharassment, ivs = sex:privacy, dv = rep_victim),  
  iv = age,  
  value = "15-17"  
)
```

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plot\_sci

*Lorenz Curve for the Situational Clustering Index*

---

## Description

Plots a Lorenz Curve for the Situational Clustering Index (SCI) to visualize the magnitude of the clustering of observations among dominant profiles in a `cacc_matrix`.

## Usage

```
plot_sci(cacc_matrix)
```

## Arguments

`cacc_matrix` A tibble. The output of the `cacc` function.

## Value

Returns a ggplot object.

## References

Hart, T. C. (2019). Identifying Situational Clustering and Quantifying Its Magnitude in Dominant Case Configurations: New Methods for Conjunctive Analysis. *Crime & Delinquency*, 66(1), 143-159.

## Examples

```
plot_sci(cacc_matrix = cacc(onharassment, ivs = sex:privacy, dv = rep_victim))
```

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