

# Decision tree for interpreting output

More details can be found in the guidelines ('Guidelines\_output\_GORIC.html'), available from: <https://github.com/rebeccakuiper/Tutorials/tree/main>

1. Choose the **hypothesis** with the **highest GORIC(A) weight**, this is the preferred/best hypothesis (called  $H_H$ ).

2. Check: Is there one or more hypotheses ( $H_i$ ) for which the ratio of loglik.weights for  $H_H$  vs  $H_i$  is (approximately) 1 or even smaller than 1?

**No, ratio > 1**

The ratio of loglik.weights for  $H_H$  vs all others is > 1.

i.e.,  $H_H$  has the highest fit.



**Yes, ratio = 1 or ≈ 1**

The ratio of loglik.weights for  $H_H$  vs another is (≈) 1.

i.e.,  $H_H$  has together with at least one other hypothesis the highest fit (or close to the highest fit).



**Yes, ratio < 1**

The ratio of loglik.weights for  $H_H$  vs another is < 1.

i.e., at least one other hypothesis has the highest fit.



**Yes, both < 1 and (≈) 1**

At least one other hypothesis has the highest fit.

&

$H_H$  has (approximately) the same fit as at least one other hypothesis.



There is **support for the preferred Hypothesis  $H_H$** .

See Section 4 of the guidelines.

One can check the ratio of GORIC(A) weights of  $H_H$  with other hypotheses and check the case-specific benchmarks (Section 6).

Notes:

In case of overlapping hypotheses, this indicates support for the non-overlapping part. See Section 5.1.1.2 of the guidelines.

In case the failsafe (i.e., the complement or the unconstrained) is the best, one can take on an additional exploratory approach to create one or more new hypotheses for future research.

There is **support for the preferred Hypothesis  $H_H$ , but not convincing**. See Section 5.3 of the guidelines.

One can check the ratio of GORIC(A) weights of  $H_H$  with other hypotheses; but its support is not convincing.

Notes:

Hypothesis  $H_H$  is preferred, but another hypothesis has the highest fit (notably,  $H_H$  has the best balance between fit and complexity).

**The sample size is probably too small.** Future research (with a higher sample size) can give more insight. One could additionally use an exploratory approach to create one or more new or competing hypotheses for future research.

There is **support for the overlap** in (or boundary of)  $H_H$  with the hypotheses with the same/similar fit.

See Section 5.1 of the guidelines.

Interpreting the ratio of GORIC(A) weights is not meaningful.

Note: As a basis for future research, one could specify the overlap (or (the preferred) boundary) and evaluate that against its complement.

There is **support for the overlap** in (or boundary of)  $H_H$  with the hypotheses with the same/similar fit, but **not convincing**.

See Sections 5.1 and 5.3 of the guidelines.

Interpreting the ratio of GORIC(A) weights is not meaningful.

Note: **The sample size is probably too small.** Future research (with a higher sample size) can give more insight in whether the overlap of hypotheses indeed still seems to be the best.

Note: If  $H_H$  is true in the population and no other hypothesis contains the truth, its GORIC(A) weight will go to 1 when sample size or effect size increases.

Stated otherwise, in such a case, the GORIC(A) weights reflect the uncertainty of a hypothesis being the best.