

Perché non generare test e questionari open... dal principio?

Risorse open per generare matrici di tipo Raven

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European Meeting of the Mathematical Psychology Group

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- 2 Time goes by...
- 3 The matRiks package
- 4 Perché?

All'inizio di tutto
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Time goes by...
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The matRiks package
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Perché?
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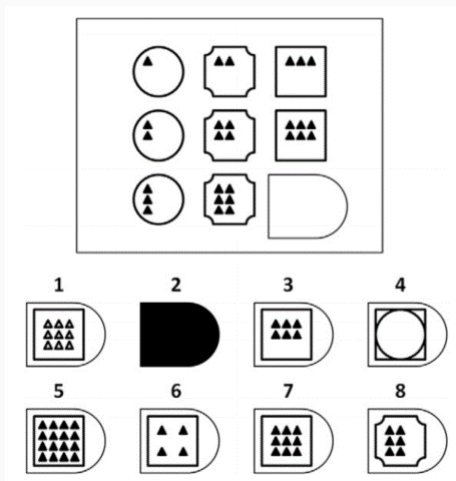
Raven e le regole generative

Misurare l'intelligenza fluida senza andare a toccare le conoscenze pregresse e bypassando tutto quello che si è appreso con il processo di acculturazione... ma come?

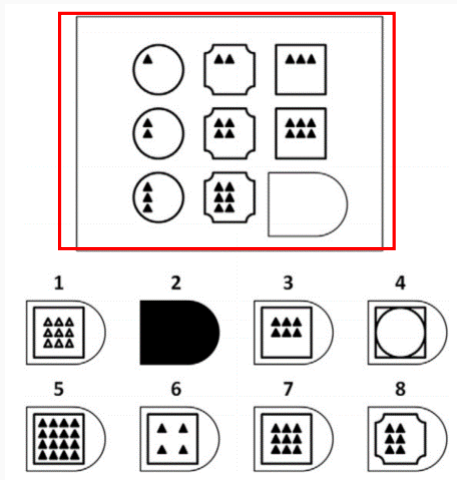
Analogie visive.. ma come?

Regole generative che vengono utilizzate per manipolare i rapporti visuo-spaziali o logici tra figure e oggetti

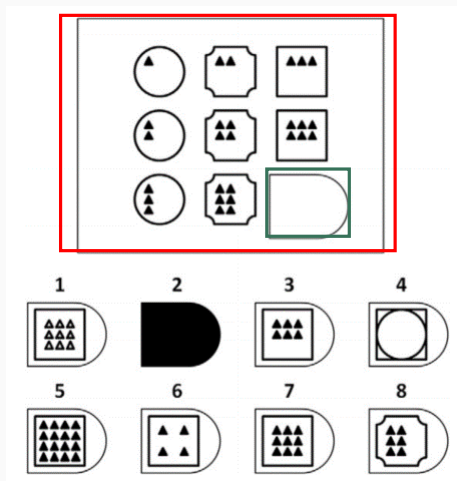
Un esempio



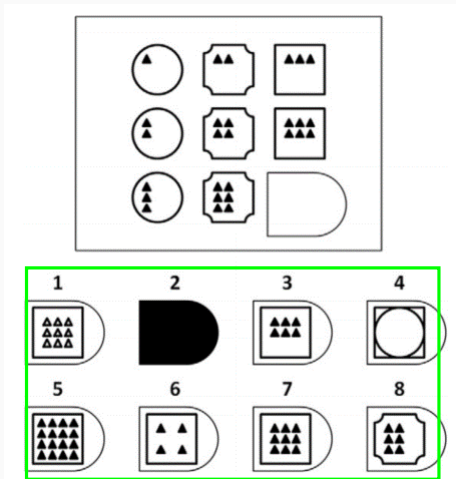
Un esempio



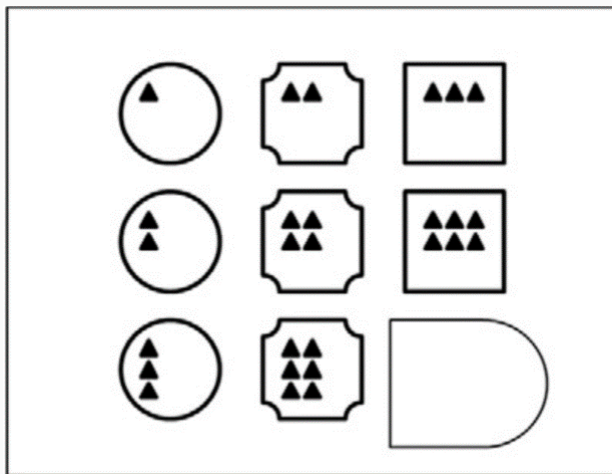
Un esempio



Un esempio

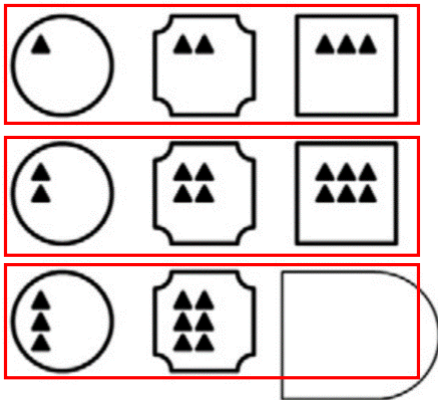


The matrix



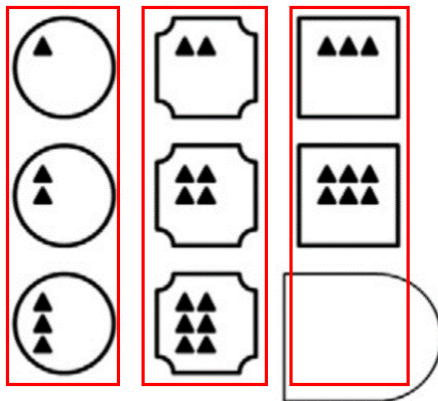
The matrix

Cambio forma & Progressione numerica

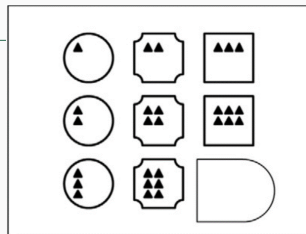
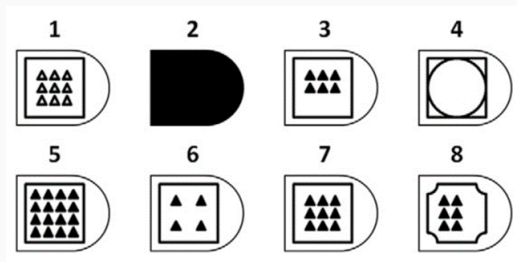


The matrix

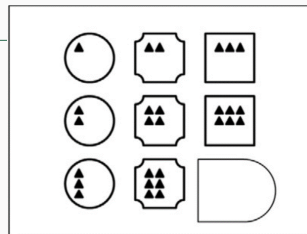
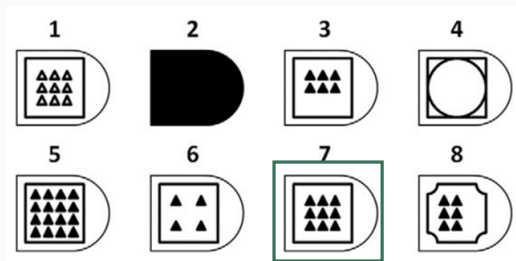
Progressione numerica



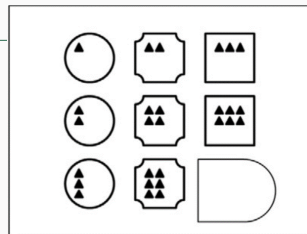
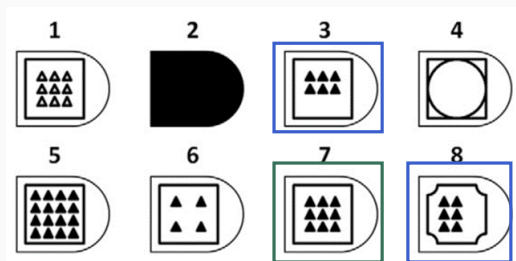
The response options



The response options



The response options



Repetition

Incomplete Correlate

Wrong Principle

Difference

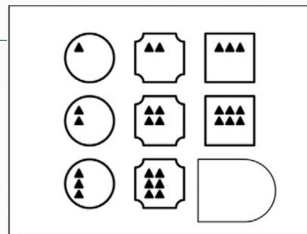
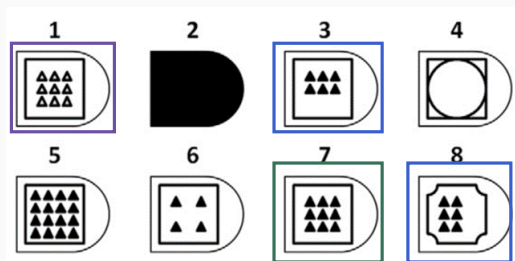
Ripetizione di una cella adiacente alla cella vuota

“Quasi” la risposta corretta

Viene usata una regola non corretta per risolvere la matrice

Effetto pop-up

The response options



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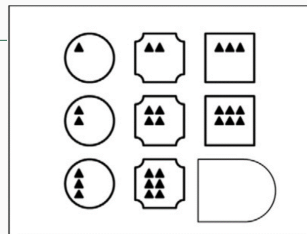
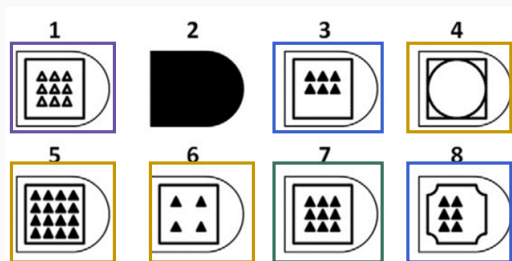
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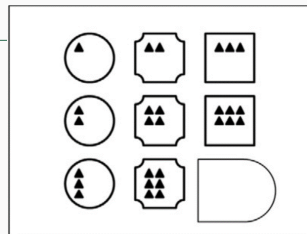
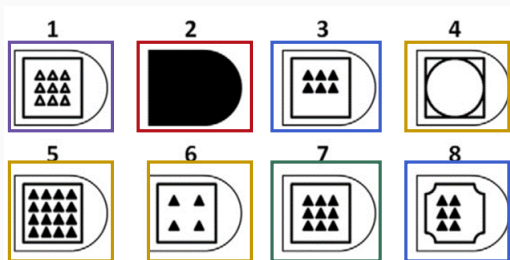
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All'inizio di tutto
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Time goes by...
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The matRiks package
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Perché?
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Time has passed... but few open and easy-to-use resources are available for the generation of Raven's like matrices

Corvus

It's on <https://github.com/Thimbleby/Corvus> (and the maintainer is super nice :)!)

Based in Javascript but provided with with an intuitive UI

Sandia

No longer maintained
"Rudimentary stimuli"

They don't allow for reproducing the stimuli generation process

All'inizio di tutto
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matRiks

```
install.packages("matRiks")
```

```
library(matRiks)
```

how to generate an RMarkdown file with your matrices!

```
vignette("generate_matriks")
```

matRiks: Generates Raven-like Matrices According to Rules

Generates Raven-like matrices according to different rules and the response list associated to the matrix. The package can generate matrices composed of 4 or 9 cells, along with a response list of 11 elements (the correct response + 10 incorrect responses). The matrices can be generated according to both logical rules (i.e., the relationships between the elements in the matrix are manipulated to create the matrix) and visual-spatial rules (i.e., the visual or spatial characteristics of the elements are manipulated to generate the matrix). The graphical elements of this package are based on the 'Drex Factor' package. This package has been developed within the PRIN2020 Project (Prot. 2020P9KCLL1) titled "Compositized, Adaptive and Personalized Assessment of Executive Functions and Fluid Intelligence" and funded by the Italian Ministry of Education and Research.

Version: 0.1.0
Imports: DescTools
Suggests: devtools, knitr, rmarkdown, testthat (≥ 3.0.0), r3
Published: 2024-02-16
DOI: [10.22144/CRAN.package.matRiks](https://doi.org/10.22144/CRAN.package.matRiks)
Author: Andrea Benvenuto [aut, cph, con], Ottavia M. Epifania [aut, cph, con], Debora de Chincio [orb]
Maintainer: Andrea Benvenuto <andrea.benvenuto@uniipi.it>
License: MIT + file LICENSE
NeedsCompilation: no
Platform: RELEASE_NURBS
CRAN checks: [matRiks results](#)

Documentation:

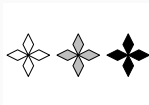
Reference manual: [matRiks.pdf](#)
Vignettes: [black-figure](#)
[circle-sections](#)
[cloud-figure](#)
[cyclic-shapes-figure](#)
[drex-factor](#)
[generate_matriks](#)
[item](#)
[other-figure](#)

Regole disponibili

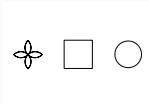
Cambi di dimensione, size



Cambi di riempimento, shade



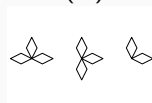
Cambi di forma, shape



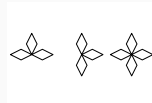
Cambi di orientamento, rotate



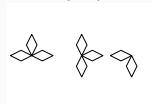
AND (\cap), AND



OR (\cup), OR



XOR (Δ), XOR



Generare gli stimoli

genera una matrice

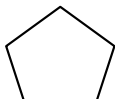
```
my_mat1 = mat_apply(cof(pentagon(),square(size.x = 16, size.y = 16),  
                      circle(size.x = 15)),
```

```
    hrules = "shape", # regola applicata attraverso le colonne
```

```
    vrules = "lty") # regola applicata attraverso le righe
```

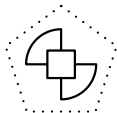
disegna la matrice

```
draw(my_mat1, hide = TRUE)
```



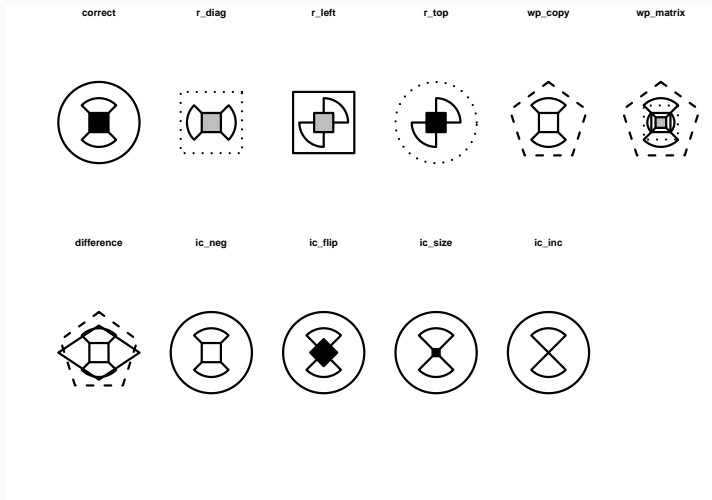
Generare stimoli più complessi

```
my_mat2 = mat_apply(axe(size.x=9), hrules="rotate", vrules="rotate")  
my_mat3 = mat_apply(square(size.x = 5), hrules="shade")  
the_mat = com(my_mat1, my_mat2, my_mat3) # combina le matrici  
draw(the_mat, hide = TRUE)
```



A ogni stimolo i suoi distrattori

```
my_responses = response_list(the_mat)
draw(my_responses, main = T)
```



All'inizio di tutto
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Time goes by...
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Estremamente facile da usare, rende la generazione degli stimoli accessibile a tutti*

Costringe a pensare a livello teorico agli stimoli che si vogliono generare, alla loro complessità, alle loro caratteristiche

Il codice rimane e si può inserire all'interno di un RMarkdown per avere stimoli e distrattori sempre insieme