

# Available Matrix

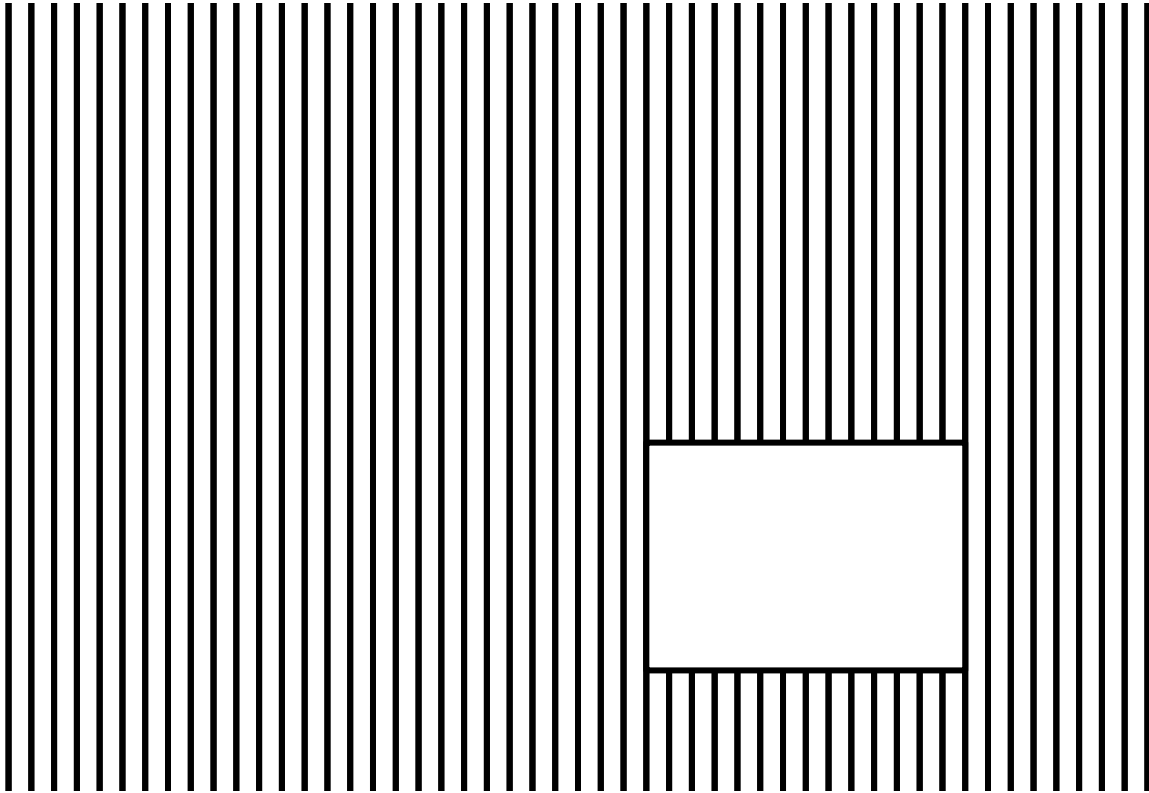
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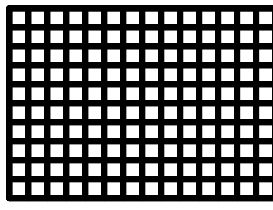
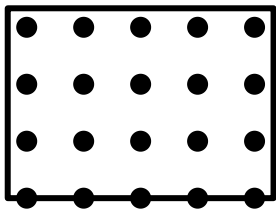
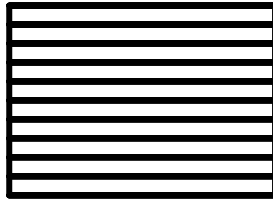
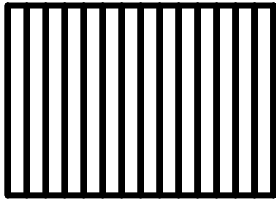
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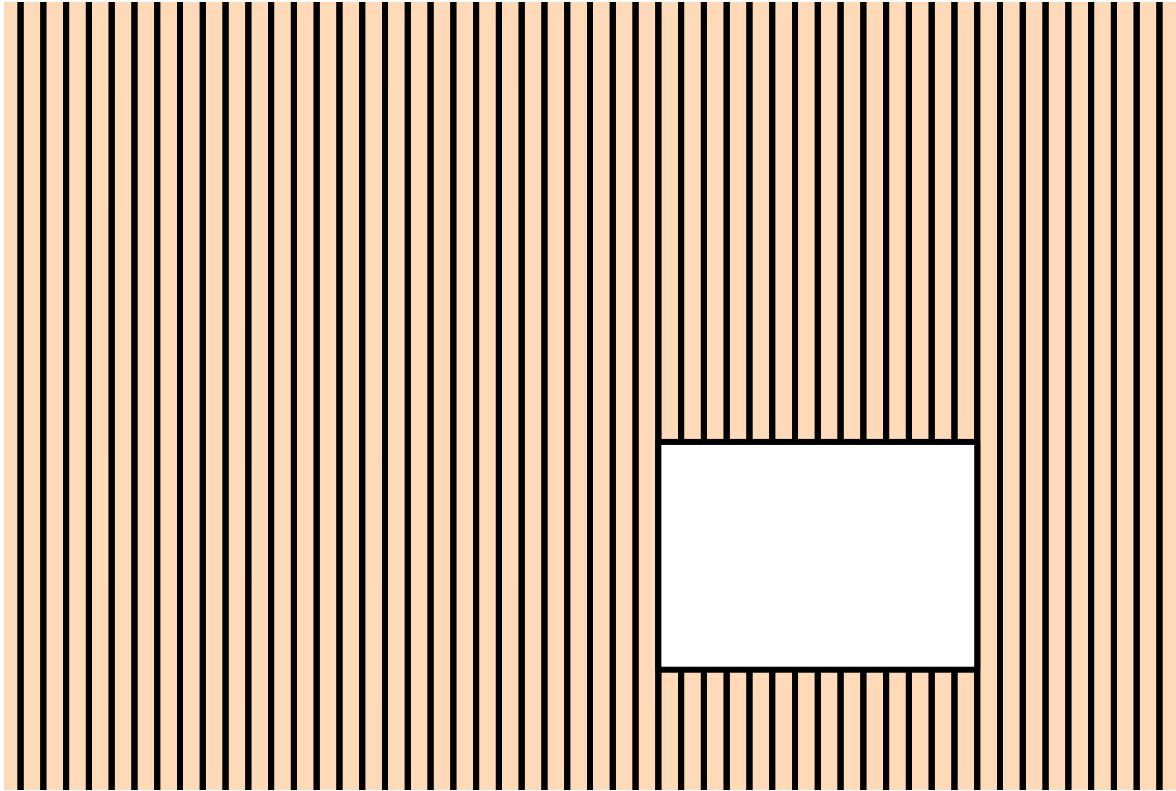
Monotematiche

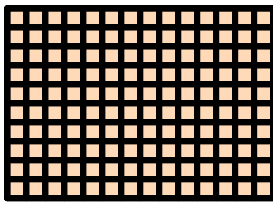
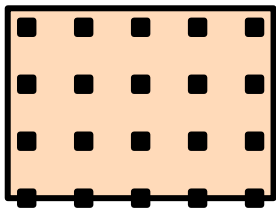
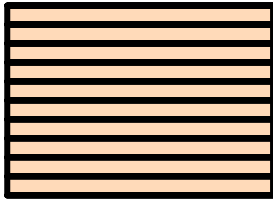
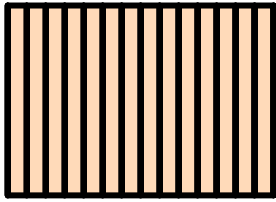
Righe semplici Verticali



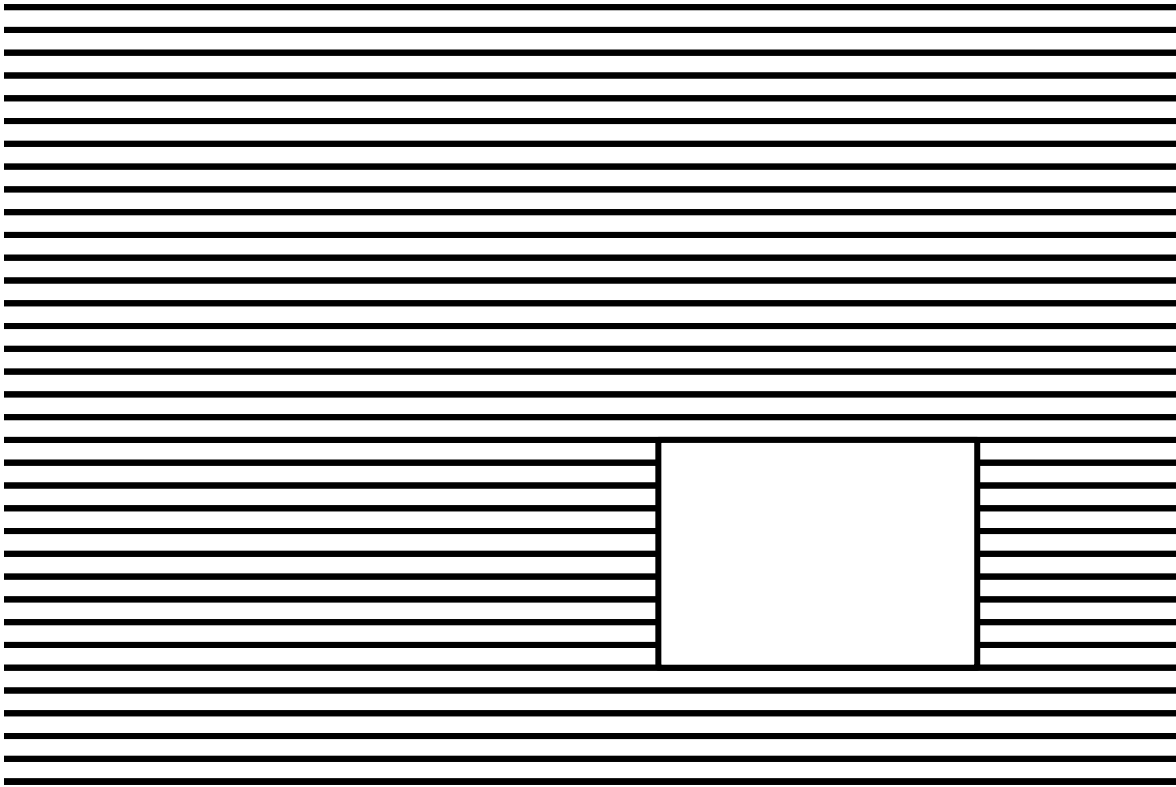


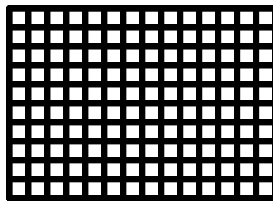
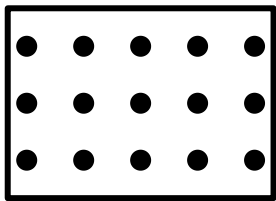
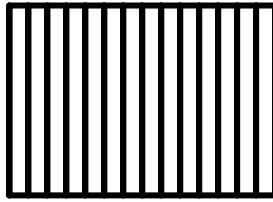
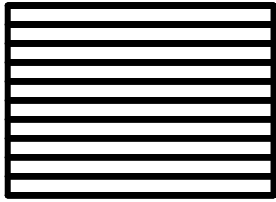
Vertical color





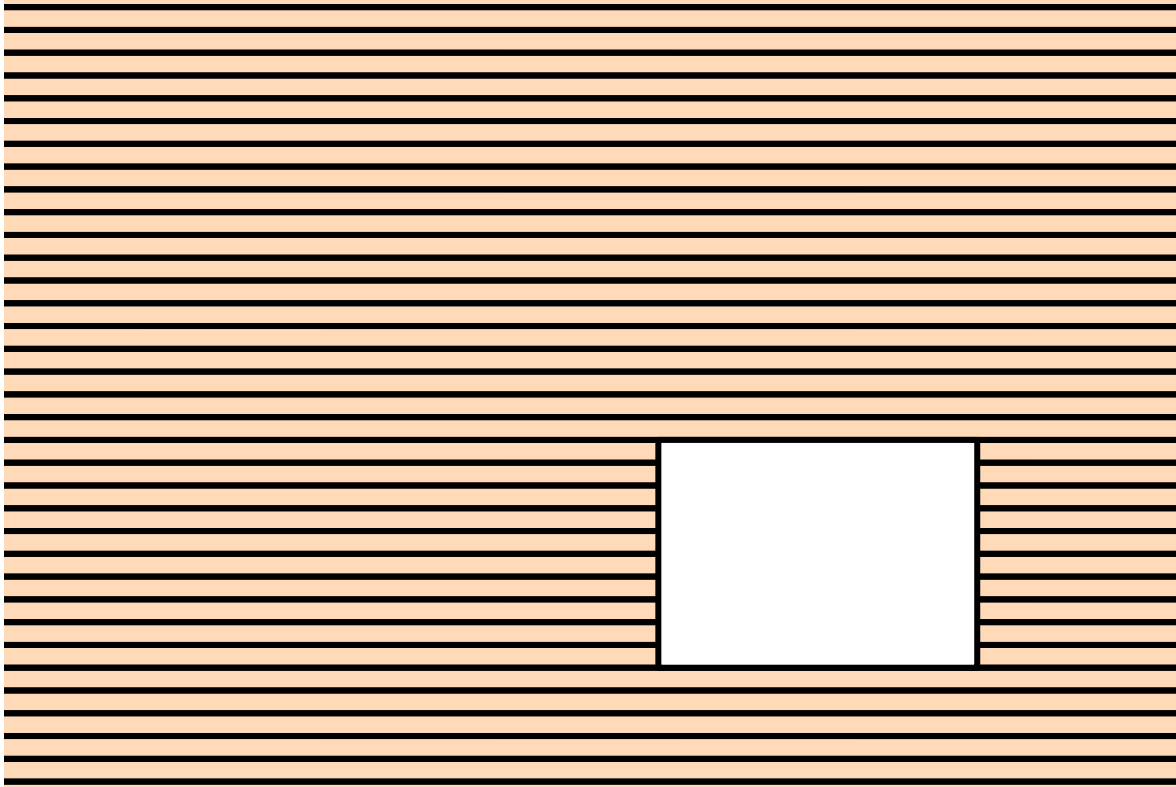
Horizontal

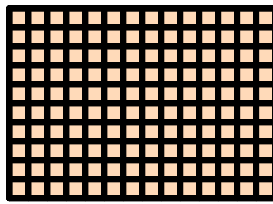
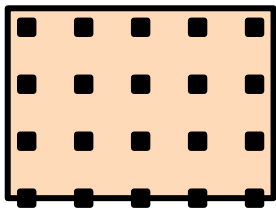
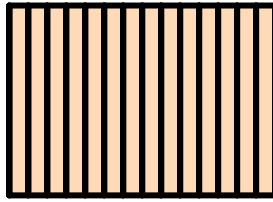
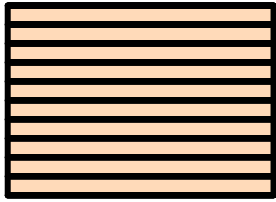




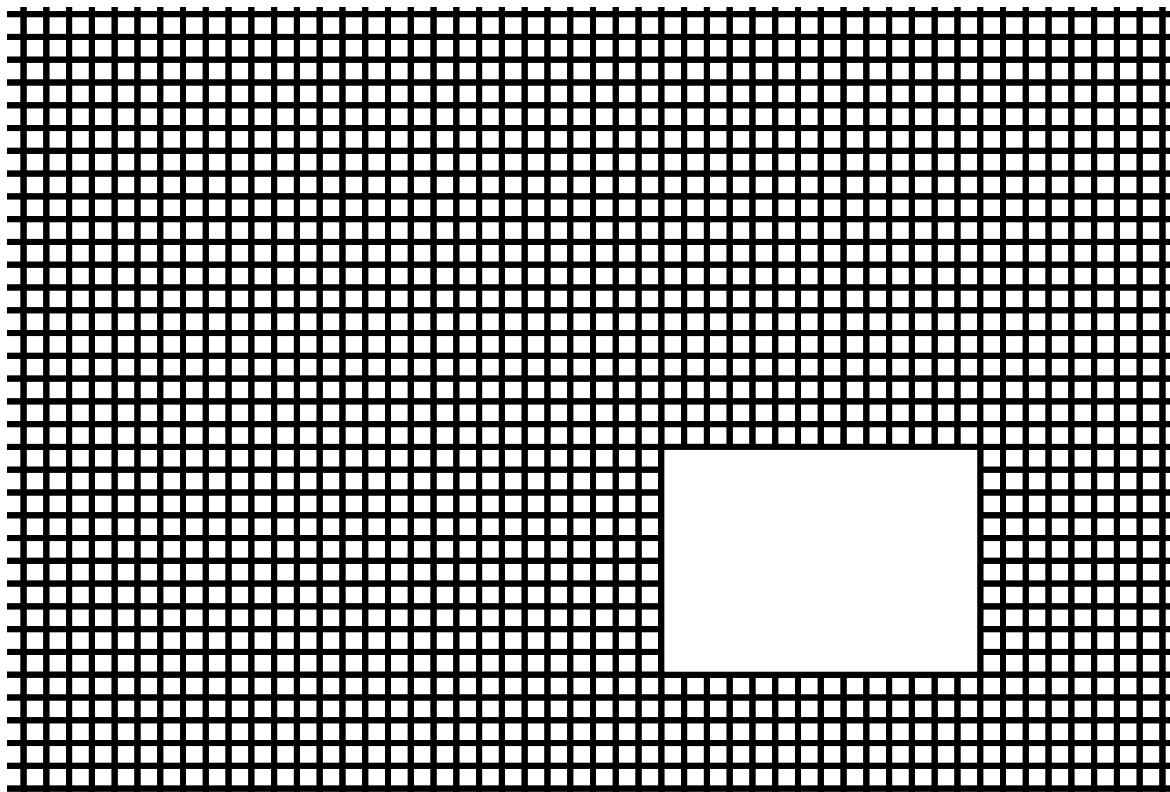


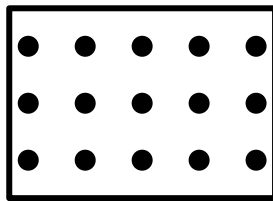
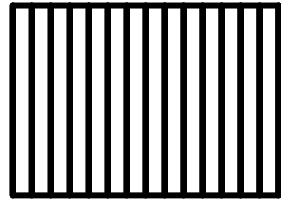
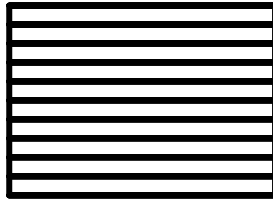
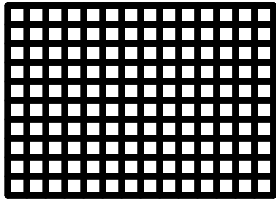
horizontal color



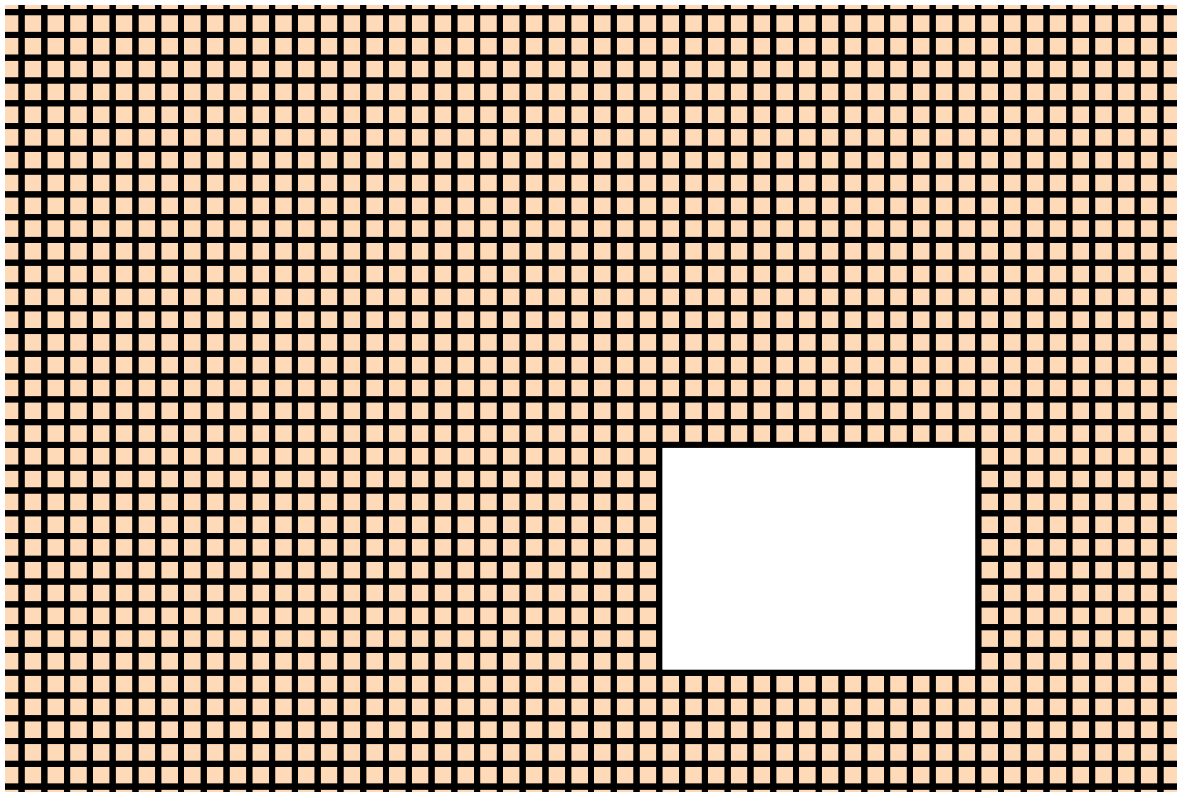


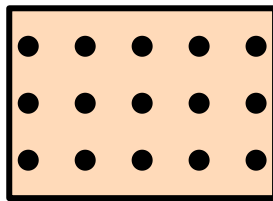
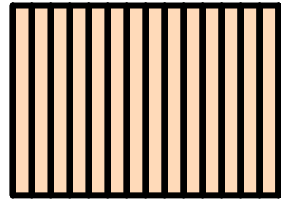
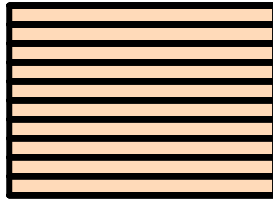
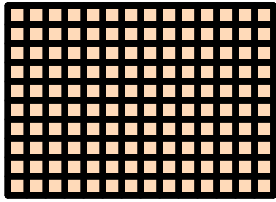
Insieme



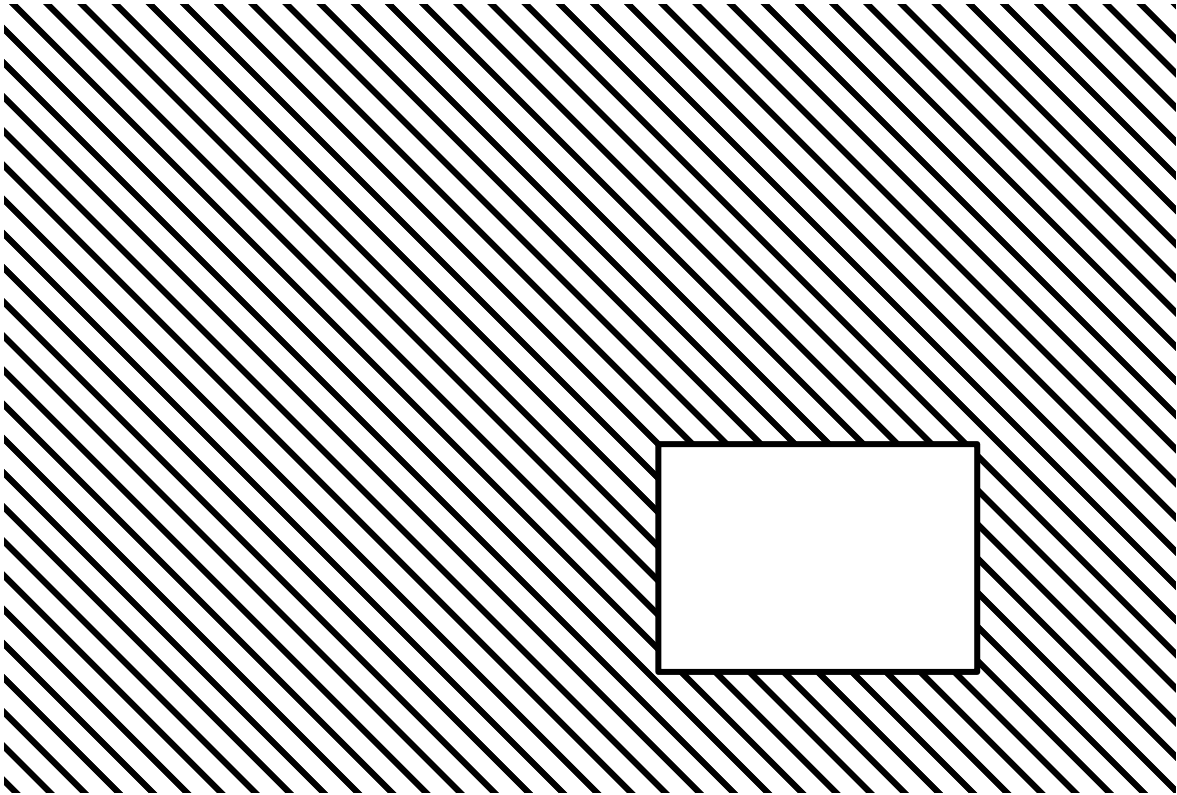


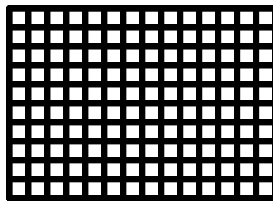
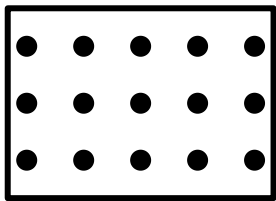
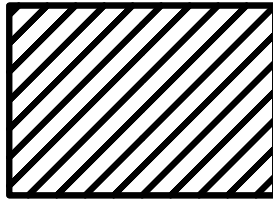
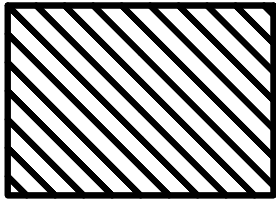
Insieme color





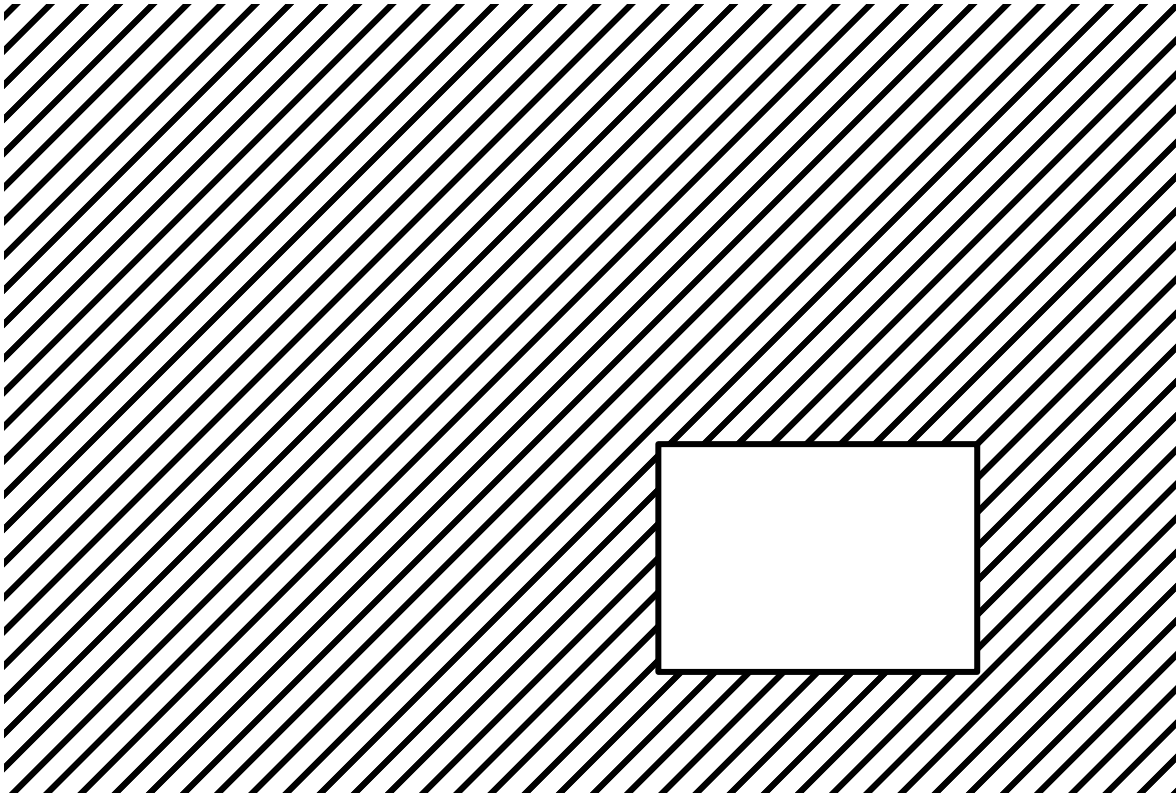
Diagonale principale

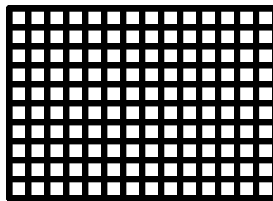
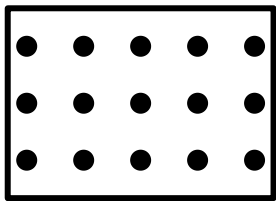
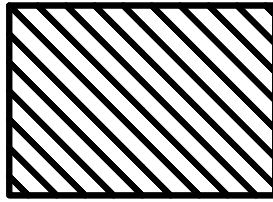
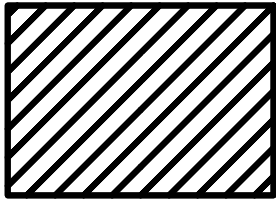




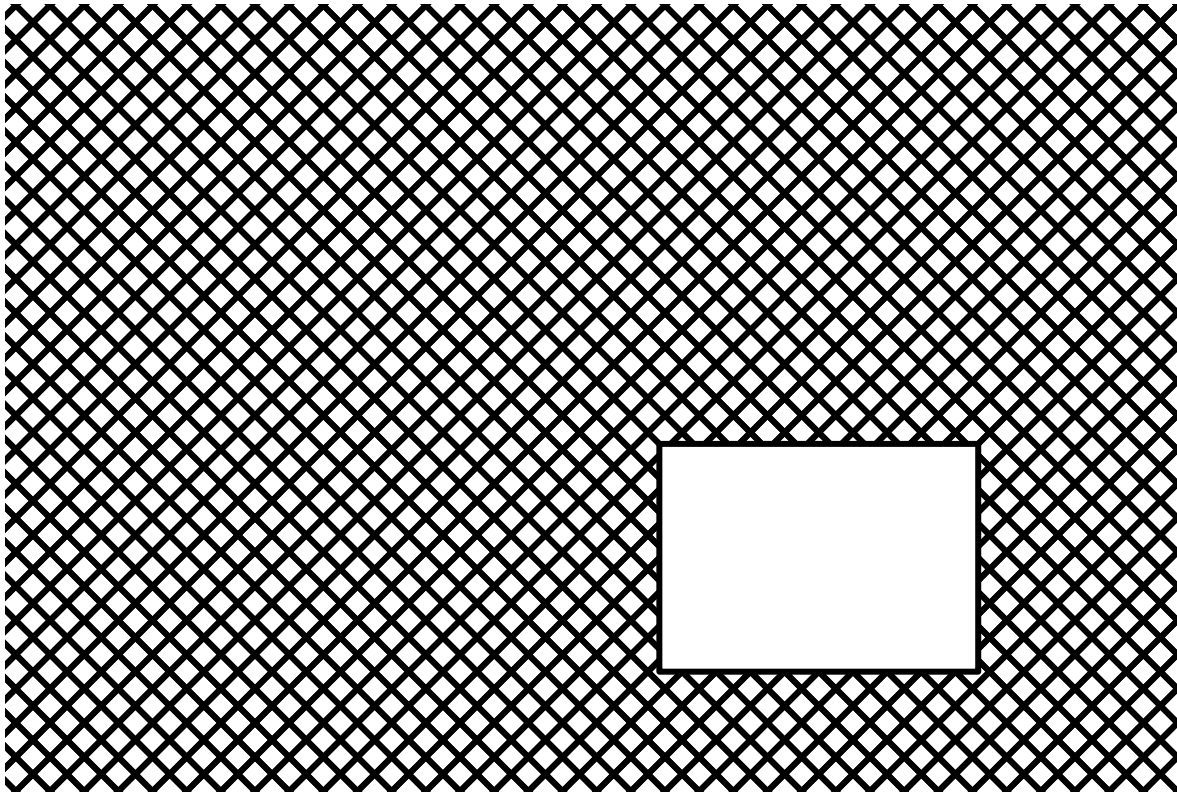


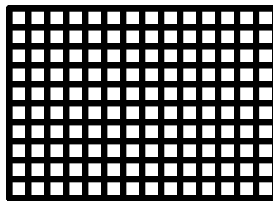
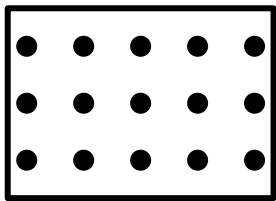
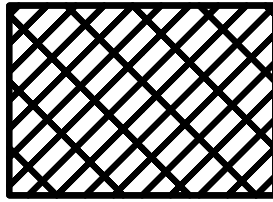
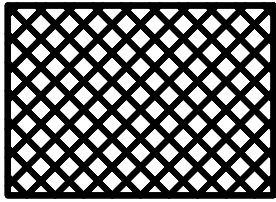
Diagonale secondaria



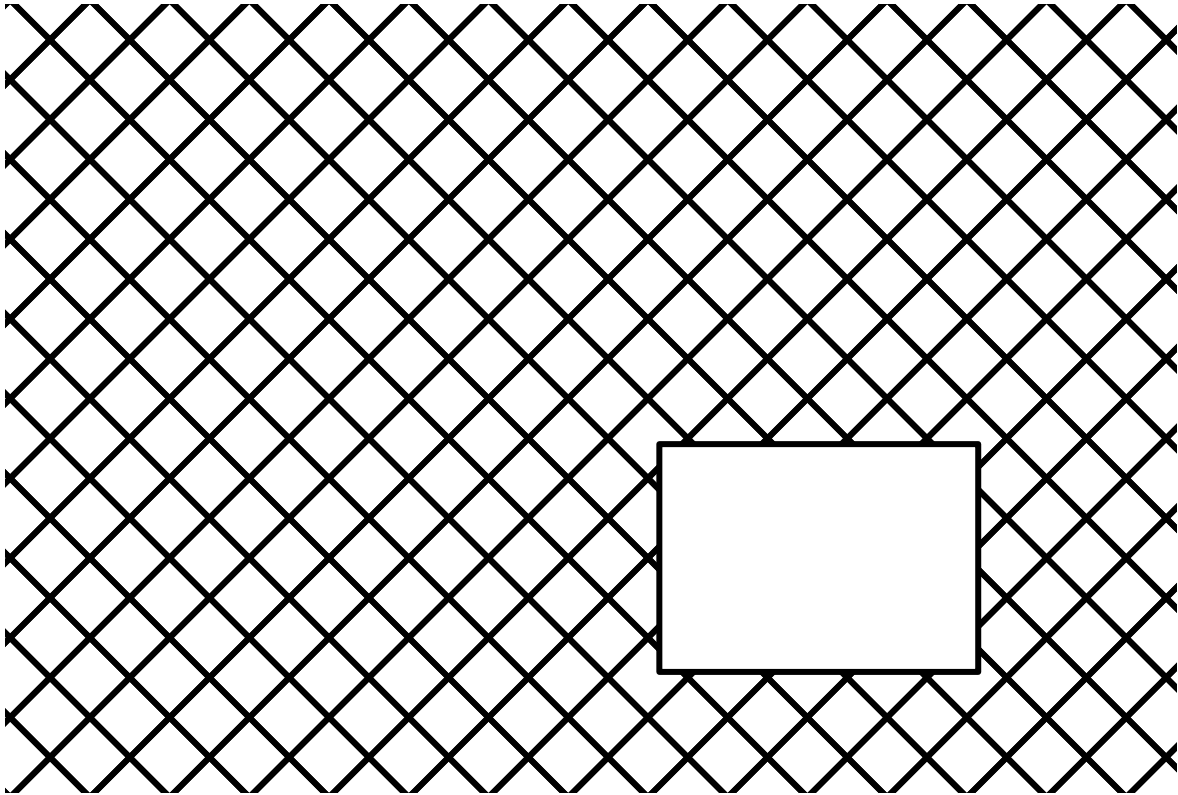


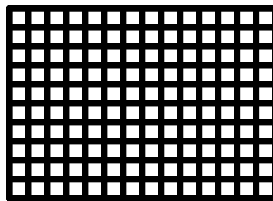
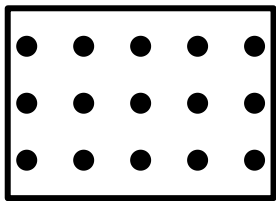
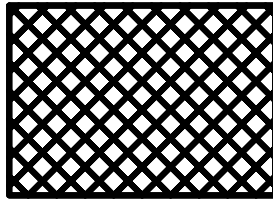
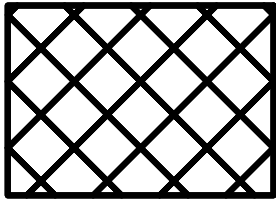
Insieme (mal di mare)



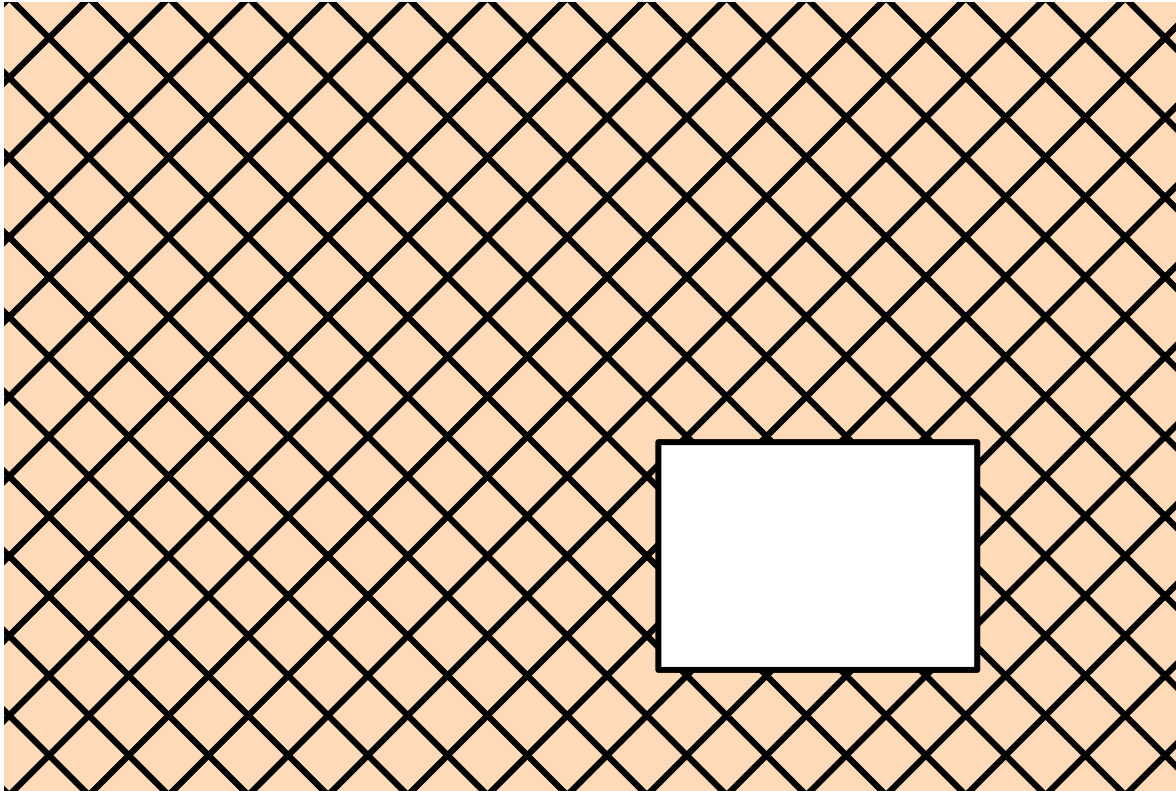


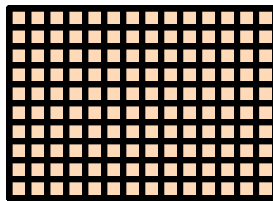
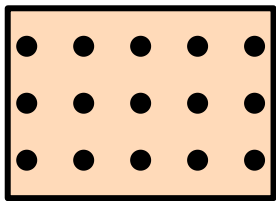
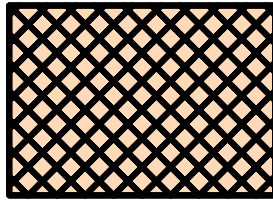
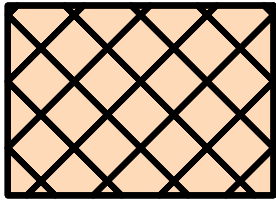
Si può variare la distanza





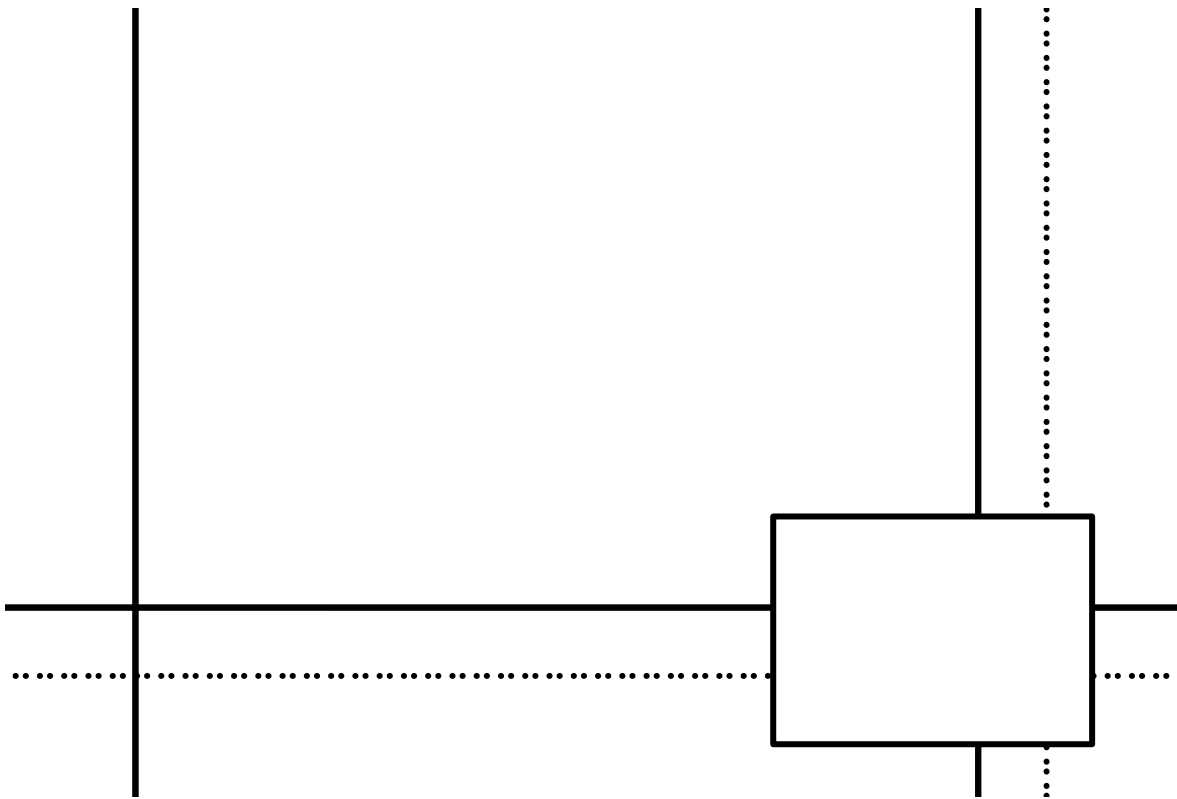
Insieme diagonali color

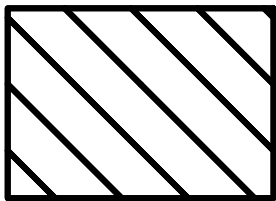
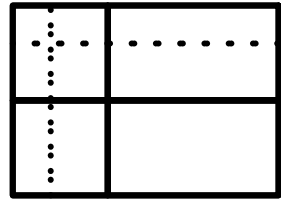
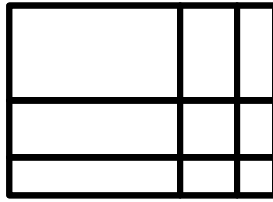




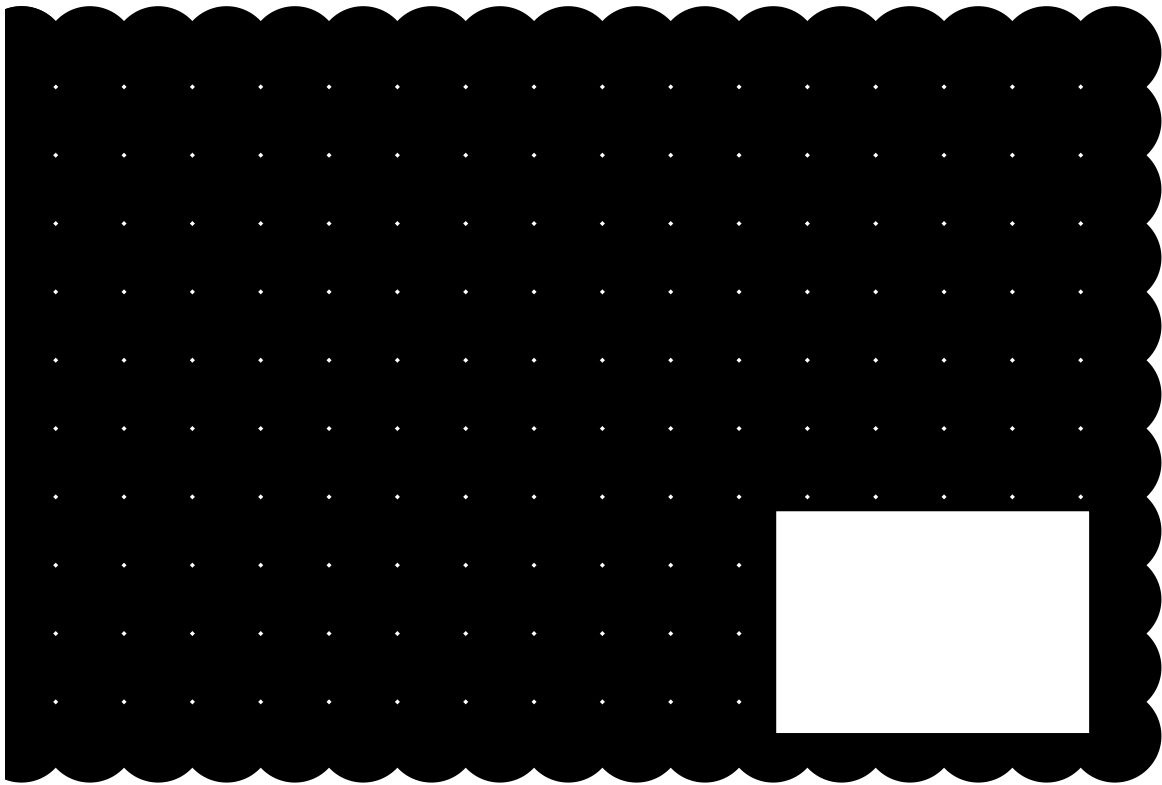


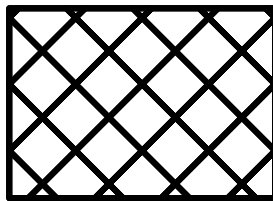
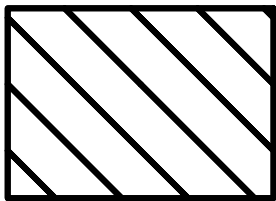
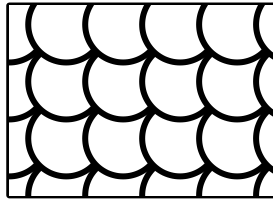
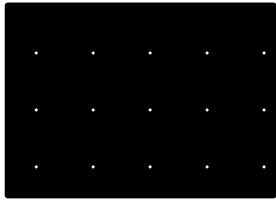
Più complesse

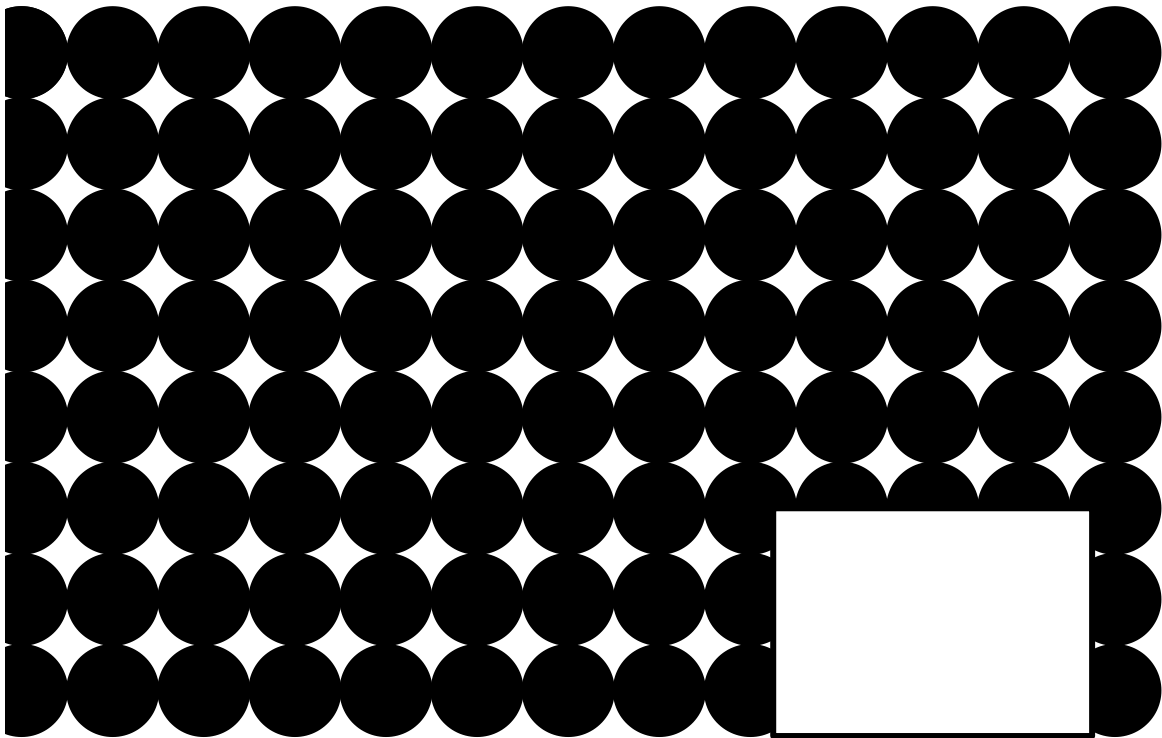


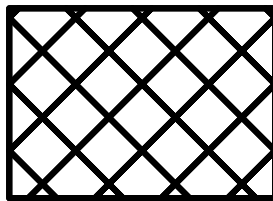
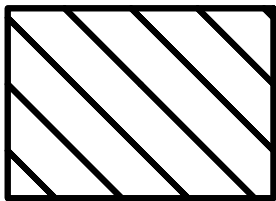
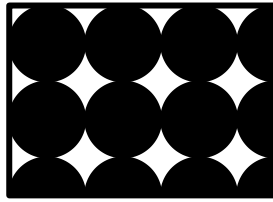
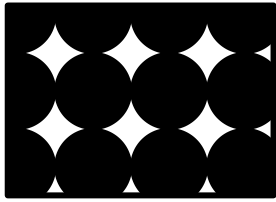


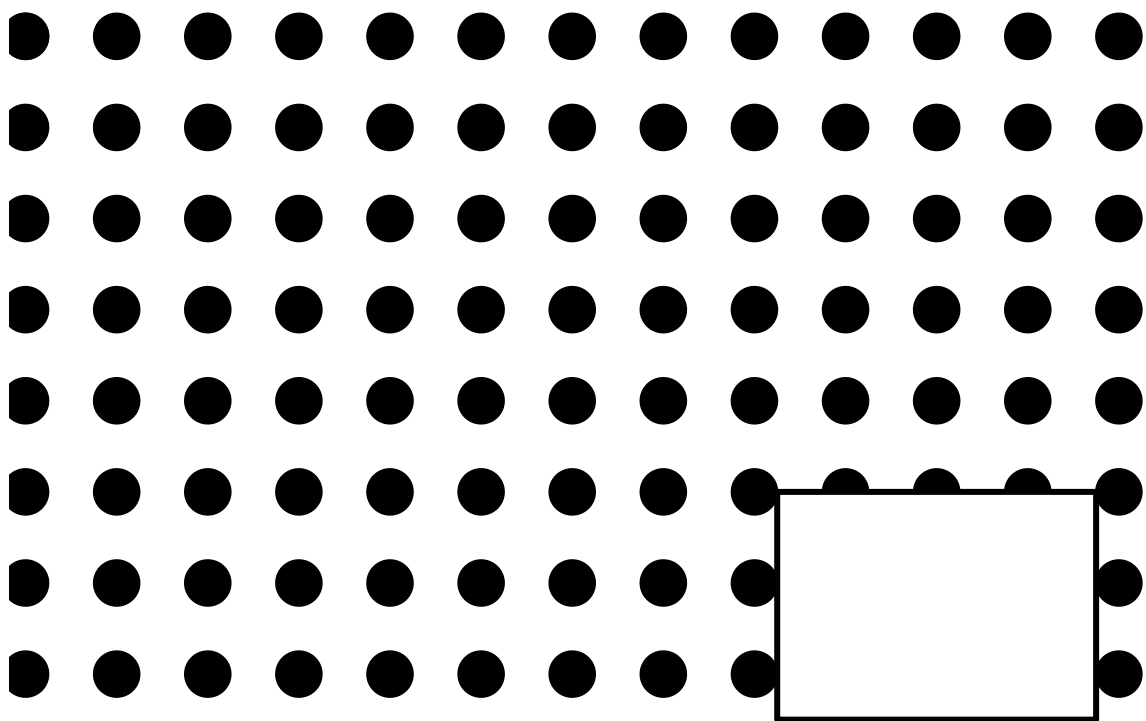
Con altre forme

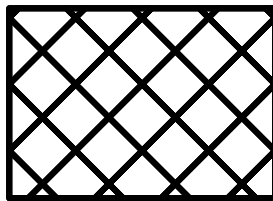
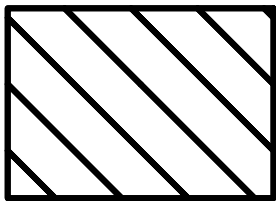
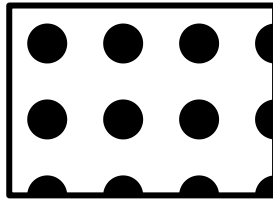
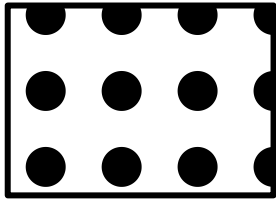




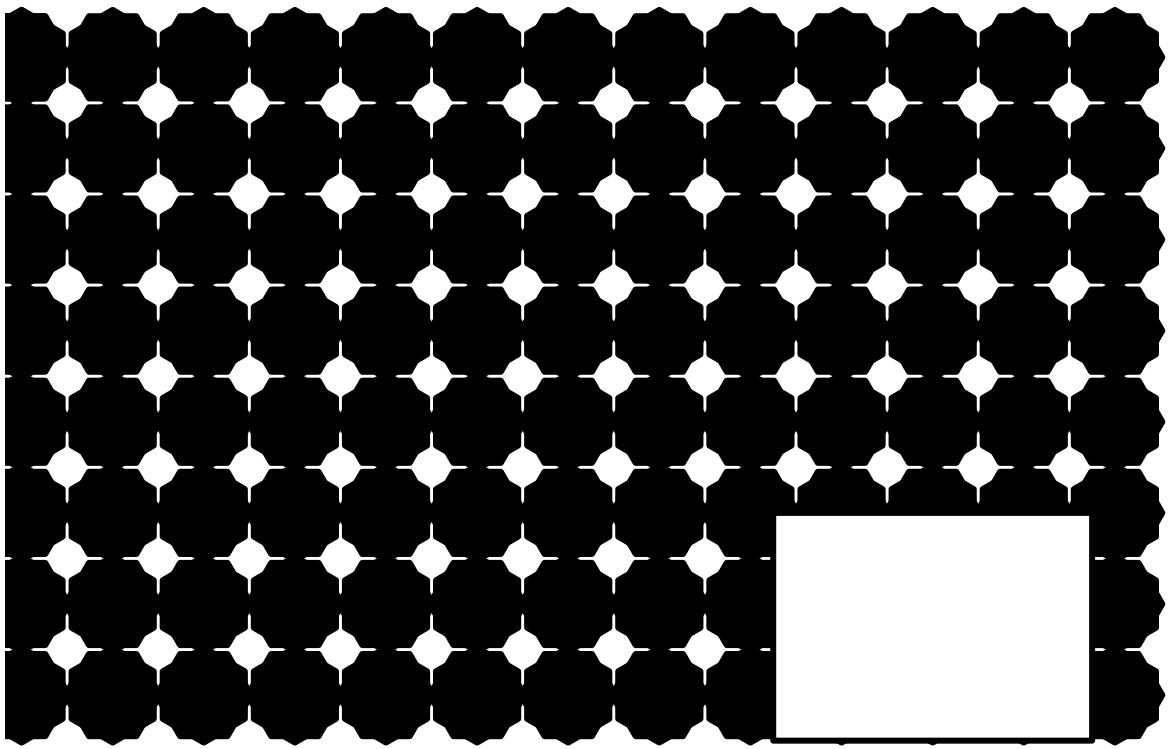


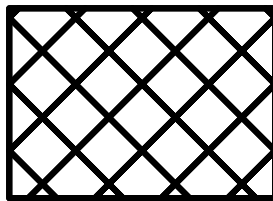
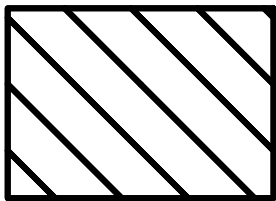
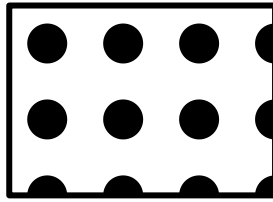
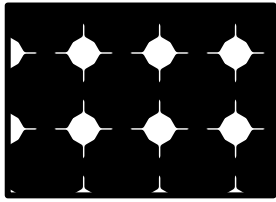


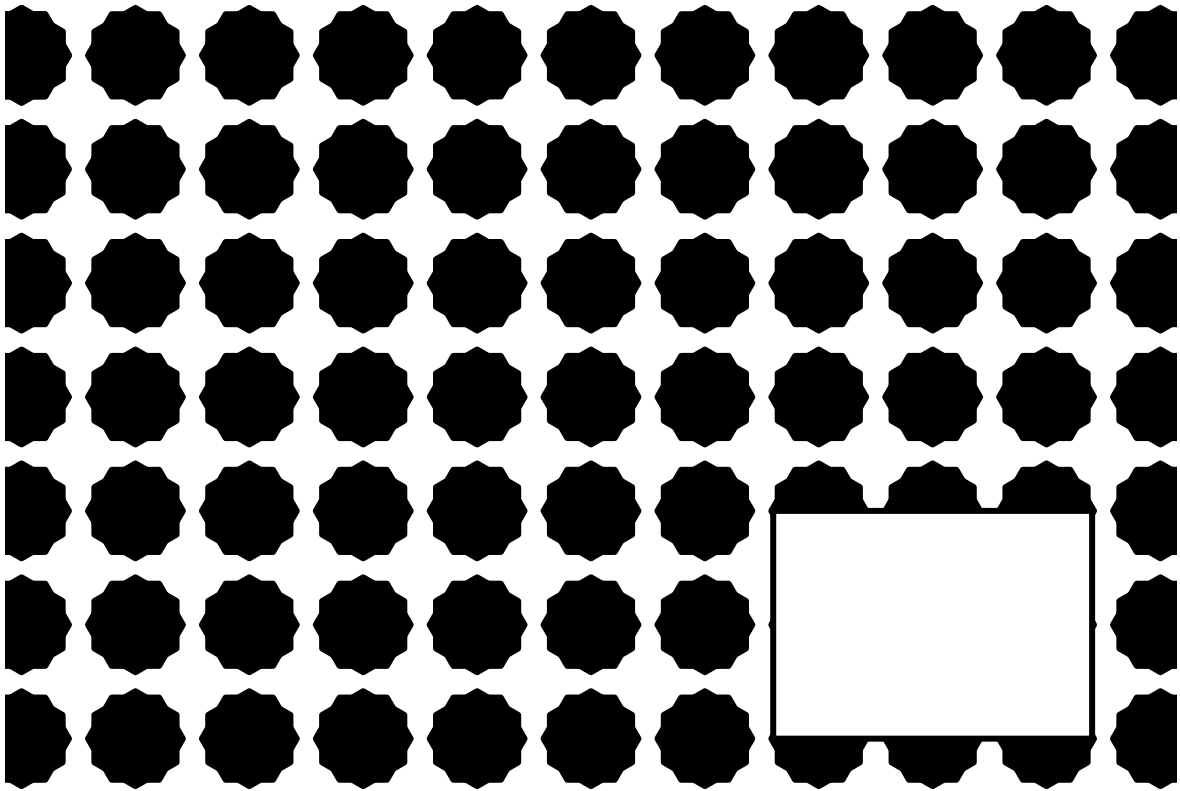


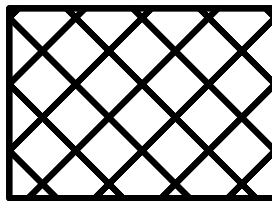
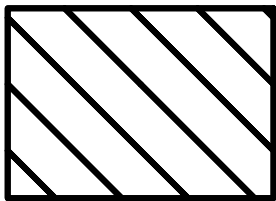
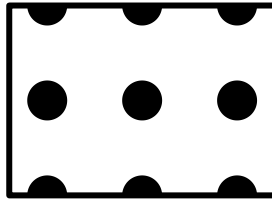
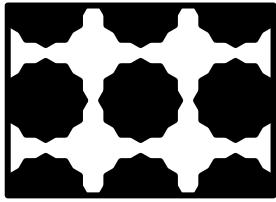






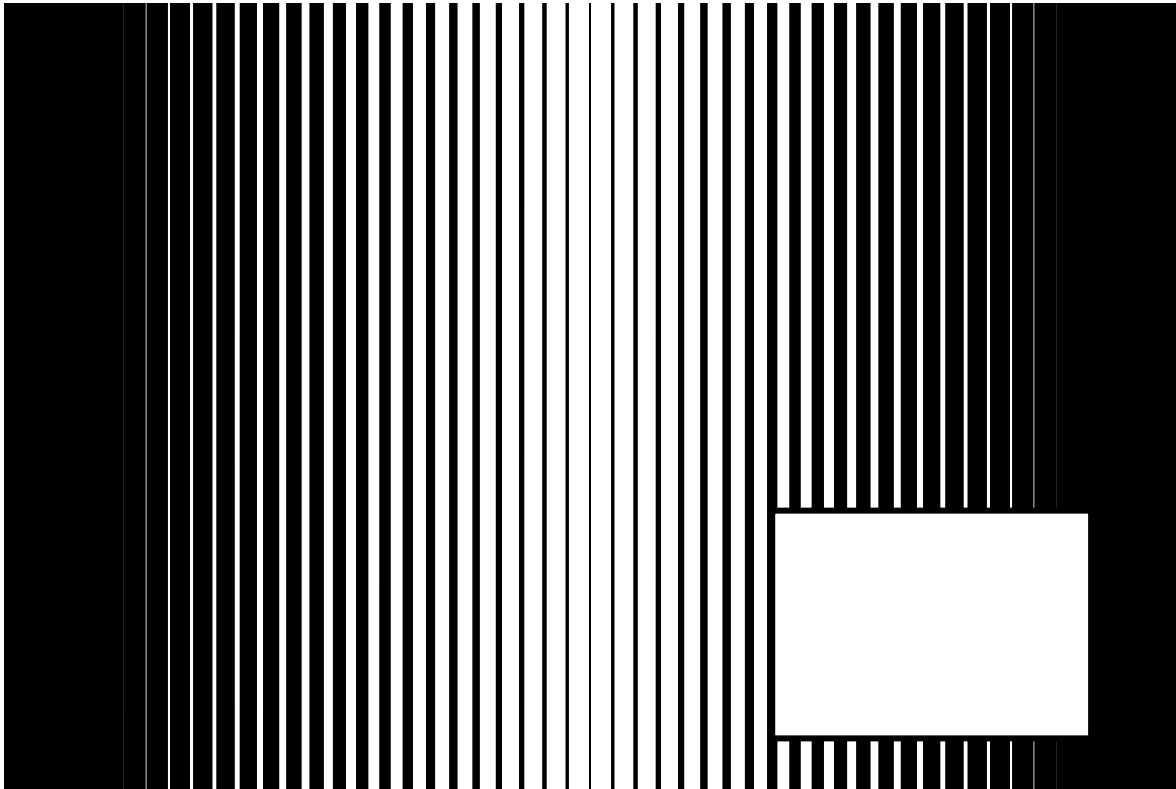


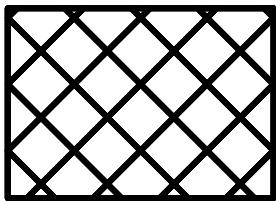
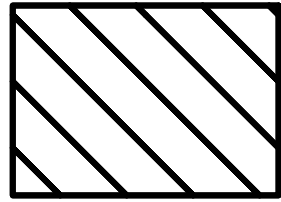
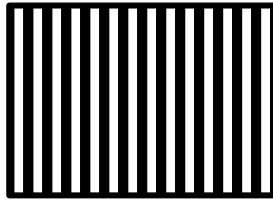




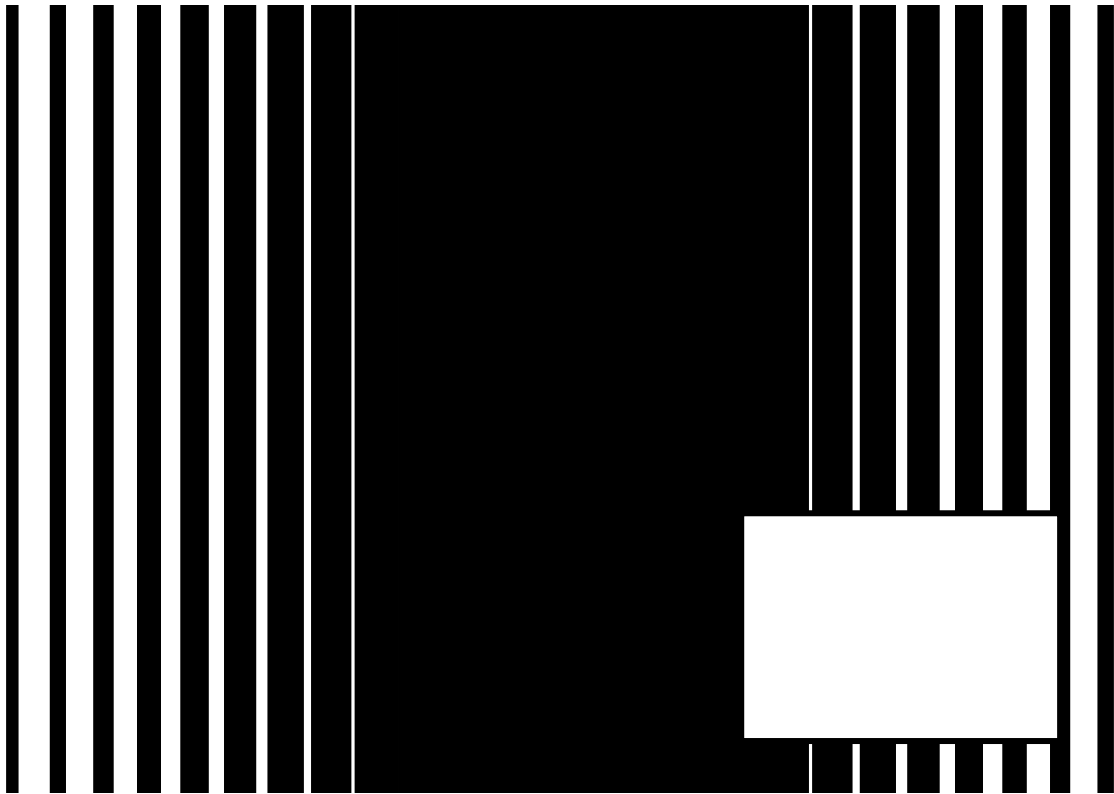
⋮

Righe “complesse” verticali  
Vertical Inner

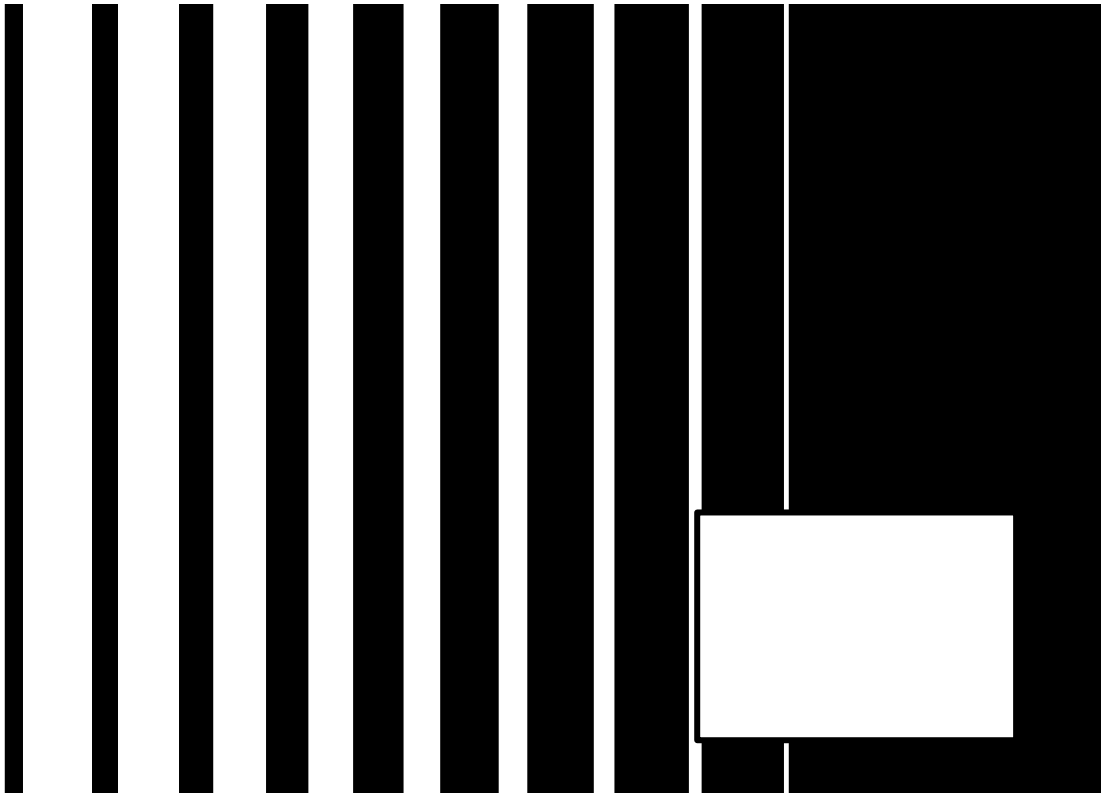




## Vertical Outer

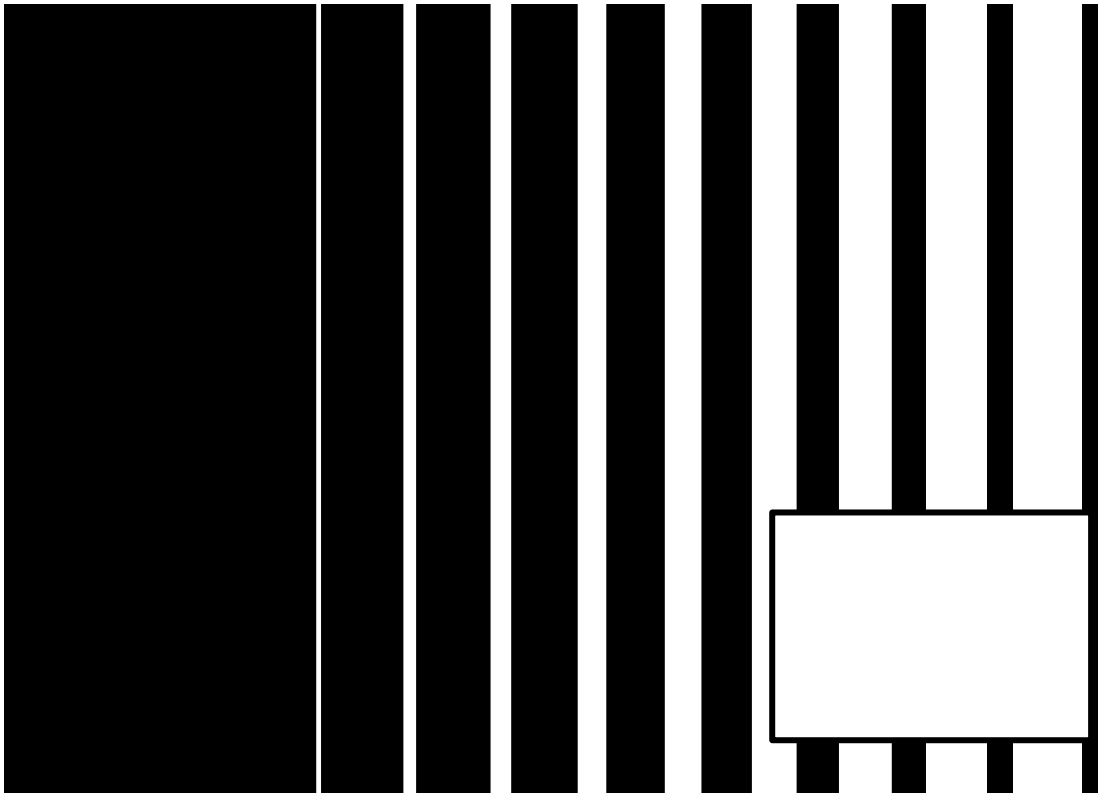


Vertical increasing



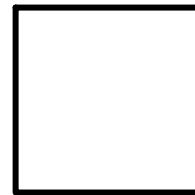
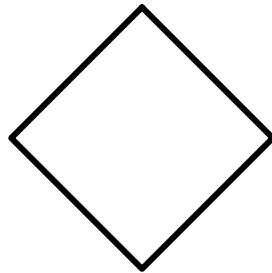
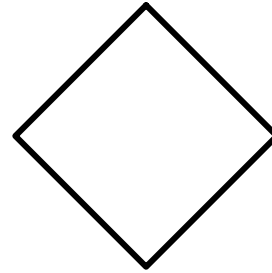
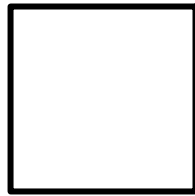


Vertical decreasing



## Matrici $2 \times 2$

### Rotazione Diagonale



```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##   unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##     "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##     "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##   T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
```

```

##   if (is.na(ic.col$shade[[1]]) == T) {
##       ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##       ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##       ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##       ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##       new_index = sample(index_elements, 1)
##       ic.temp = hide(m.correct, new_index)
##       if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "white") {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "black") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "grey") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##       1) {
##       if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "white") {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "black") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "grey") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       ic.temp = split.m[[which.element]]
##       for (i in 1:length(which(names(split.m) != which.element))) {
##           ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##               ic.temp)
##       }
##       ic.col = ic.temp
##   }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]

```

```

##   if (is.na(ic.col$shade[[1]]) == T) {
##       ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##       ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##       ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##       ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##       new_index = sample(index_elements, 1)
##       ic.temp = hide(m.correct, new_index)
##       if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "white") {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "black") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "grey") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##       1) {
##       if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "white") {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "black") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "grey") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       ic.temp = split.m[[which.element]]
##       for (i in 1:length(which(names(split.m) != which.element))) {
##           ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##               ic.temp)
##       }
##       ic.col = ic.temp
##   }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {

```

```

##      ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##      ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##      m.c = m.correct
##      if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##          unlist(m.c$shade)), na.rm = T) == T) {
##          m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##              "black"))))
##      }
##      else if (any(unlist(m.c$shade == "white")) == T) {
##          m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##              "white"))))
##      }
##      else if (is.na(any(unlist(m.c$shade))) == T) {
##          m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##      }
##      else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##          T) {
##          m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##      }
##      ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##      ic.col = split.m[[1]]
##      if (is.na(ic.col$shade[[1]]) == T) {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "white") {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "black") {
##          ic.col$shade[[1]] = "white"
##      }
##      else if (ic.col$shade[[1]] == "grey") {
##          ic.col$shade[[1]] = "white"
##      }
## } else {
##      if (is.null(which.element) == T & length(split.m) != 1) {
##          new_index = sample(index_elements, 1)
##          ic.temp = hide(m.correct, new_index)
##          if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##              split.m[[new_index]]$shade[[1]] = "black"
##          }
##          else if (split.m[[new_index]]$shade[[1]] == "white") {
##              split.m[[new_index]]$shade[[1]] = "black"
##          }
##      }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##     }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
## }

```

```

##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##     }

```



```

##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##     }
## }

```

```

##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## }

```

```

## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##       ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##         ic.temp)
##     }
##     ic.col = ic.temp
##   }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## }

```

```

## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##       ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##         ic.temp)
##     }
##     ic.col = ic.temp
##   }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##   ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##   ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)

```

correct

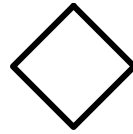
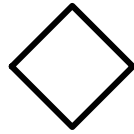
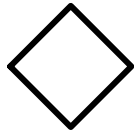
r.top

r.diag

r.left

wp.copy

wp.matrix



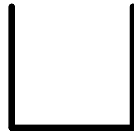
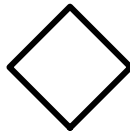
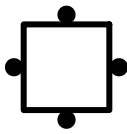
d.union

ic.scale

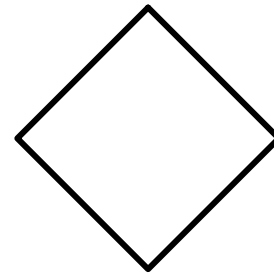
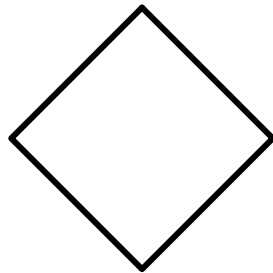
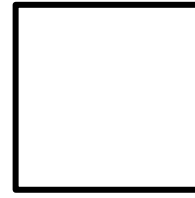
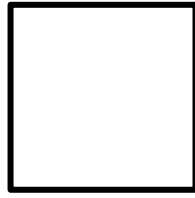
ic.flip

ic.inc

ic.neg



## Rotazione Verticale



```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
## }
```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
## }

```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"

```



```

## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##   }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##     }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
## }

```

```

##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],

```

```

##             ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],

```

```

##             ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)

```

```

##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)

```

```

##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)

```



**correct**

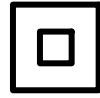
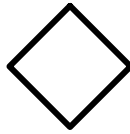
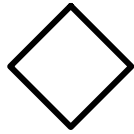
**r.top**

**r.diag**

**r.left**

**wp.copy**

**wp.matrix**



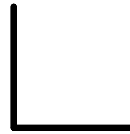
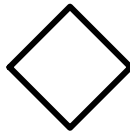
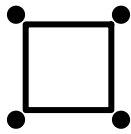
**d.union**

**ic.scale**

**ic.flip**

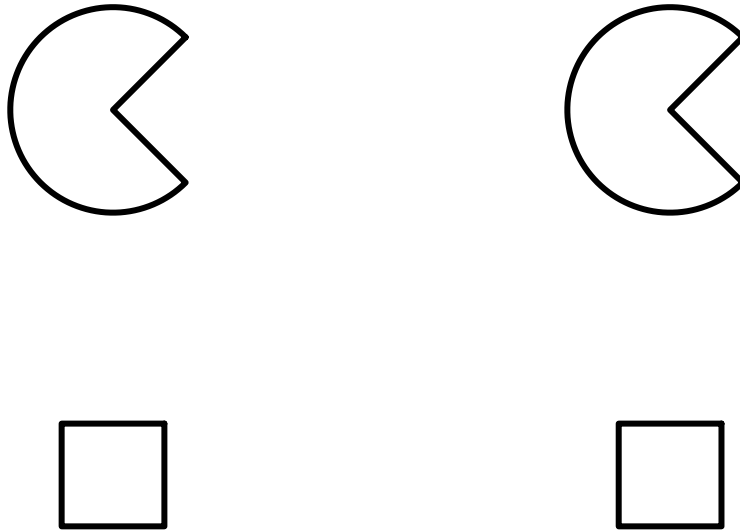
**ic.inc**

**ic.neg**



## Forma e dimensione Verticale

Ci sono problemi, perché qui bisogna mettere ben 3 forme e prende come corretta la forma che non è visibile



C'è l'ellisse! ma noi non abbiamo l'ellisse! DC!

```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
## }
```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
## }

```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"

```

```

## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##   }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##     }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
## }

```

```

##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],

```



```

##             ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],

```

```

##             ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)

```

```

##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)

```

```

##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "black"
## debug: return(ic.col)

```

correct

r.top

r.diag

r.left

wp.copy

wp.matrix



d.union

ic.scale

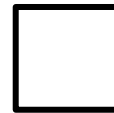
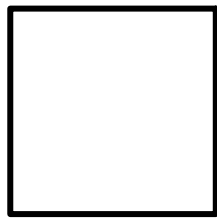
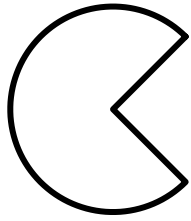
ic.flip

ic.inc

ic.neg



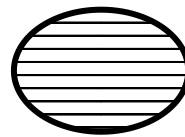
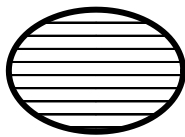
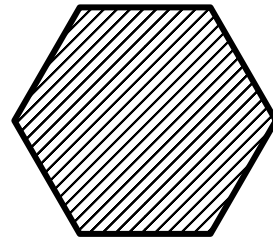
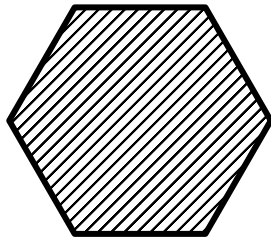
## Verticale e Orizzontale



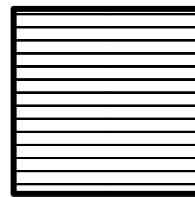
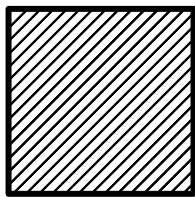
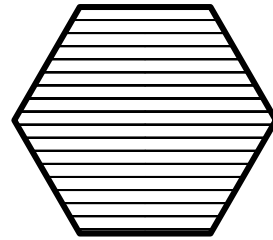
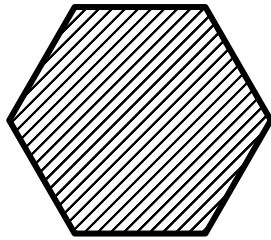
⋮

Forma e riempimento

Verticale



Verticale e orizzontale



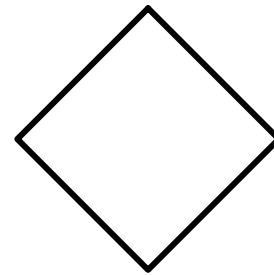
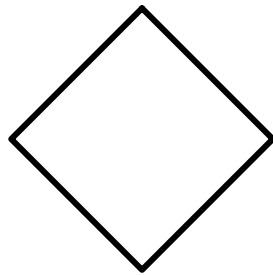
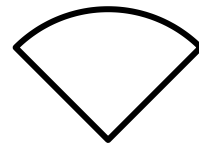
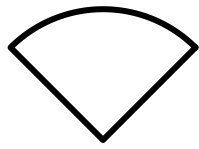
...



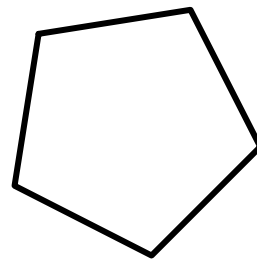
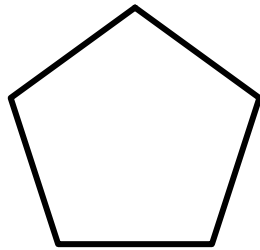
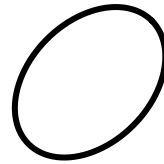
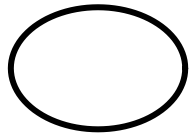
Forma e orientamento

Forma e orientamento

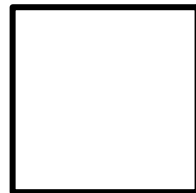
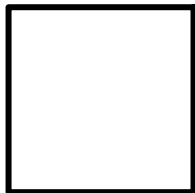
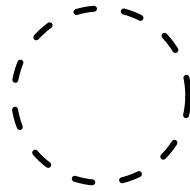
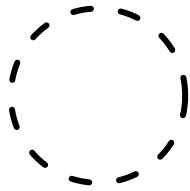
Verticale



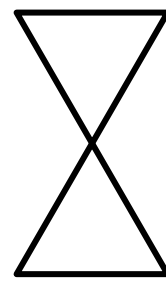
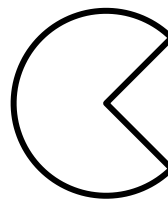
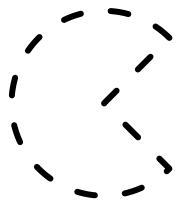
Verticale e orizzontale



Forma e bordo  
Verticale



Verticale e orizzontale



## Matrici $3 \times 3$

### Forma e dimensione Verticale



```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
```

```

##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {

```

```

##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"

```

```

## } else if (ic.col$shade[[1]] == "white") {
##   ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##   ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"

```



```

##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }

```

```

##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {

```

```

##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##      m.c = m.correct
##      if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##          unlist(m.c$shade)), na.rm = T) == T) {
##          m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##              "black"))))
##      }
##      else if (any(unlist(m.c$shade == "white")) == T) {
##          m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##              "white"))))
##      }
##      else if (is.na(any(unlist(m.c$shade))) == T) {
##          m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##      }
##      else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##          T) {
##          m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##      }
##      ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##      ic.col = split.m[[1]]
##      if (is.na(ic.col$shade[[1]]) == T) {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "white") {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "black") {
##          ic.col$shade[[1]] = "white"
##      }
##      else if (ic.col$shade[[1]] == "grey") {
##          ic.col$shade[[1]] = "white"
##      }
## } else {
##      if (is.null(which.element) == T & length(split.m) != 1) {
##          new_index = sample(index_elements, 1)
##          ic.temp = hide(m.correct, new_index)
##          if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##              split.m[[new_index]]$shade[[1]] = "black"
##          }
##          else if (split.m[[new_index]]$shade[[1]] == "white") {
##              split.m[[new_index]]$shade[[1]] = "black"

```

```

##      }
##      else if (split.m[[new_index]]$shade[[1]] == "black") {
##          split.m[[new_index]]$shade[[1]] = "white"
##      }
##      else if (split.m[[new_index]]$shade[[1]] == "grey") {
##          split.m[[new_index]]$shade[[1]] = "white"
##      }
##      ic.col = cof(ic.temp, split.m[[new_index]])
##  }
##  else if (is.null(which.element) == F & length(split.m) !=
##      1) {
##      if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##              ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"

```

```

##      }
##      else if (split.m[[new_index]]$shade[[1]] == "black") {
##          split.m[[new_index]]$shade[[1]] = "white"
##      }
##      else if (split.m[[new_index]]$shade[[1]] == "grey") {
##          split.m[[new_index]]$shade[[1]] = "white"
##      }
##      ic.col = cof(ic.temp, split.m[[new_index]])
##  }
##  else if (is.null(which.element) == F & length(split.m) !=
##      1) {
##      if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##              ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"

```

```

## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=

```

```

##      1) {
##      if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                        ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=

```

```

##      1) {
##      if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##              ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)

```



correct

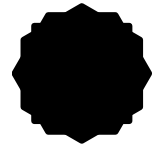
r.top

r.diag

r.left

wp.copy

wp.matrix



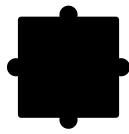
d.union

ic.scale

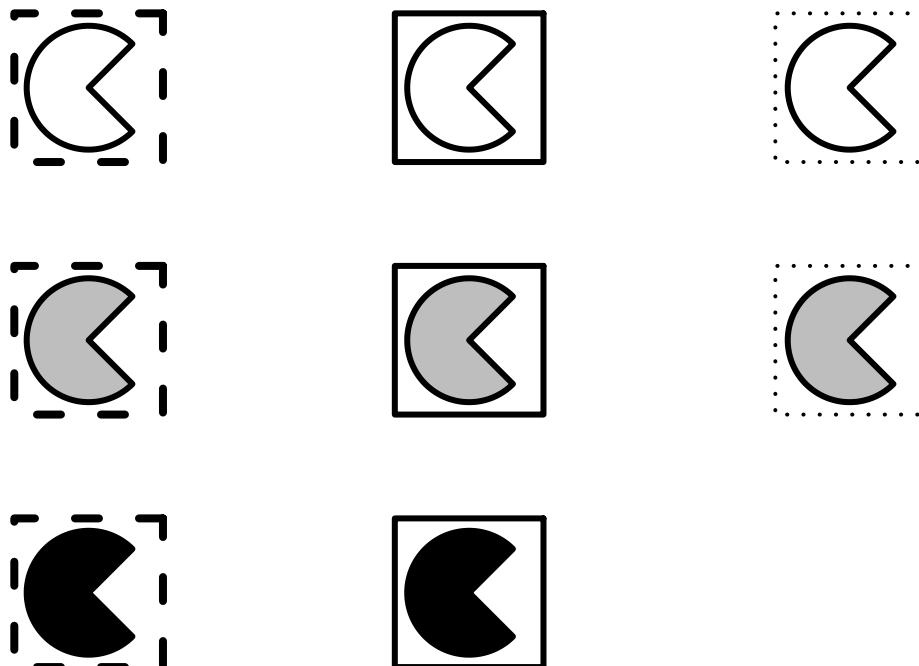
ic.flip

ic.inc

ic.neg



## Gemella 1



```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
## }
```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
## }

```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##         split.m[[new_index]]$shade[[1]] = "black"

```

```

##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##         split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## } else if (is.null(which.element) == F & length(split.m) != 1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## debug: new_index = sample(index_elements, 1)
## debug: ic.temp = hide(m.correct, new_index)
## debug: if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##     split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "white") {
##     split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "black") {
##     split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##     split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: split.m[[new_index]]$shade[[1]] = "black"
## debug: ic.col = cof(ic.temp, split.m[[new_index]])
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {

```

```

##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##     }
## }

```

```

##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##     }
## }

```

```

##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##         split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##         split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## } else if (is.null(which.element) == F & length(split.m) != 1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## debug: new_index = sample(index_elements, 1)
## debug: ic.temp = hide(m.correct, new_index)
## debug: if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##     split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "white") {
##     split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "black") {

```



```

##      split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##      split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: split.m[[new_index]]$shade[[1]] = "black"
## debug: ic.col = cof(ic.temp, split.m[[new_index]])
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##      m.c = m.correct
##      if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##          unlist(m.c$shade)), na.rm = T) == T) {
##          m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##              "black"))))
##      }
##      else if (any(unlist(m.c$shade == "white")) == T) {
##          m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##              "white"))))
##      }
##      else if (is.na(any(unlist(m.c$shade))) == T) {
##          m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##      }
##      else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##          T) {
##          m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##      }
##      ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##      ic.col = split.m[[1]]
##      if (is.na(ic.col$shade[[1]]) == T) {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "white") {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "black") {
##          ic.col$shade[[1]] = "white"
##      }
##      else if (ic.col$shade[[1]] == "grey") {
##          ic.col$shade[[1]] = "white"
##      }
## } else {
##      if (is.null(which.element) == T & length(split.m) != 1) {
##          new_index = sample(index_elements, 1)
##          ic.temp = hide(m.correct, new_index)
##          if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##              split.m[[new_index]]$shade[[1]] = "black"
##          }
##          else if (split.m[[new_index]]$shade[[1]] == "white") {
##              split.m[[new_index]]$shade[[1]] = "black"
##          }
##          else if (split.m[[new_index]]$shade[[1]] == "black") {
##              split.m[[new_index]]$shade[[1]] = "white"
##          }
##      }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##     }

```

```

##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##         split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##         split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## } else if (is.null(which.element) == F & length(split.m) != 1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {

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```

##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##       ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##         ic.temp)
##     }
##     ic.col = ic.temp
## }
## debug: new_index = sample(index_elements, 1)
## debug: ic.temp = hide(m.correct, new_index)
## debug: if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##   split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "white") {
##   split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "black") {
##   split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##   split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: if (split.m[[new_index]]$shade[[1]] == "white") {
##   split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "black") {
##   split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##   split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: if (split.m[[new_index]]$shade[[1]] == "black") {
##   split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##   split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: split.m[[new_index]]$shade[[1]] = "white"
## debug: ic.col = cof(ic.temp, split.m[[new_index]])
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
## }

```

```

##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }

```

```

## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##       split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##       split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##       ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##         ic.temp)
##     }
##     ic.col = ic.temp
##   }
## }

```

```

## }
## debug: if (is.null(which.element) == T & length(split.m) != 1) {
##   new_index = sample(index_elements, 1)
##   ic.temp = hide(m.correct, new_index)
##   if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##     split.m[[new_index]]$shade[[1]] = "black"
##   }
##   else if (split.m[[new_index]]$shade[[1]] == "white") {
##     split.m[[new_index]]$shade[[1]] = "black"
##   }
##   else if (split.m[[new_index]]$shade[[1]] == "black") {
##     split.m[[new_index]]$shade[[1]] = "white"
##   }
##   else if (split.m[[new_index]]$shade[[1]] == "grey") {
##     split.m[[new_index]]$shade[[1]] = "white"
##   }
##   ic.col = cof(ic.temp, split.m[[new_index]])
## } else if (is.null(which.element) == F & length(split.m) != 1) {
##   if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##     split.m[[which.element]]$shade[[1]] = "black"
##   }
##   else if (split.m[[which.element]]$shade[[1]] == "white") {
##     split.m[[which.element]]$shade[[1]] = "black"
##   }
##   else if (split.m[[which.element]]$shade[[1]] == "black") {
##     split.m[[which.element]]$shade[[1]] = "white"
##   }
##   else if (split.m[[which.element]]$shade[[1]] == "grey") {
##     split.m[[which.element]]$shade[[1]] = "white"
##   }
##   ic.temp = split.m[[which.element]]
##   for (i in 1:length(which(names(split.m) != which.element))) {
##     ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##       ic.temp)
##   }
##   ic.col = ic.temp
## }
## debug: new_index = sample(index_elements, 1)
## debug: ic.temp = hide(m.correct, new_index)
## debug: if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##   split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "white") {
##   split.m[[new_index]]$shade[[1]] = "black"
## } else if (split.m[[new_index]]$shade[[1]] == "black") {
##   split.m[[new_index]]$shade[[1]] = "white"
## } else if (split.m[[new_index]]$shade[[1]] == "grey") {
##   split.m[[new_index]]$shade[[1]] = "white"
## }
## debug: split.m[[new_index]]$shade[[1]] = "black"
## debug: ic.col = cof(ic.temp, split.m[[new_index]])
## debug: return(ic.col)

```

**correct**

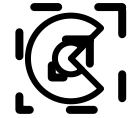
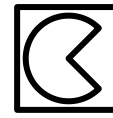
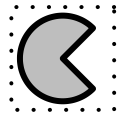
**r.top**

**r.diag**

**r.left**

**wp.copy**

**wp.matrix**



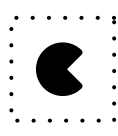
**d.union**

**ic.scale**

**ic.flip**

**ic.inc**

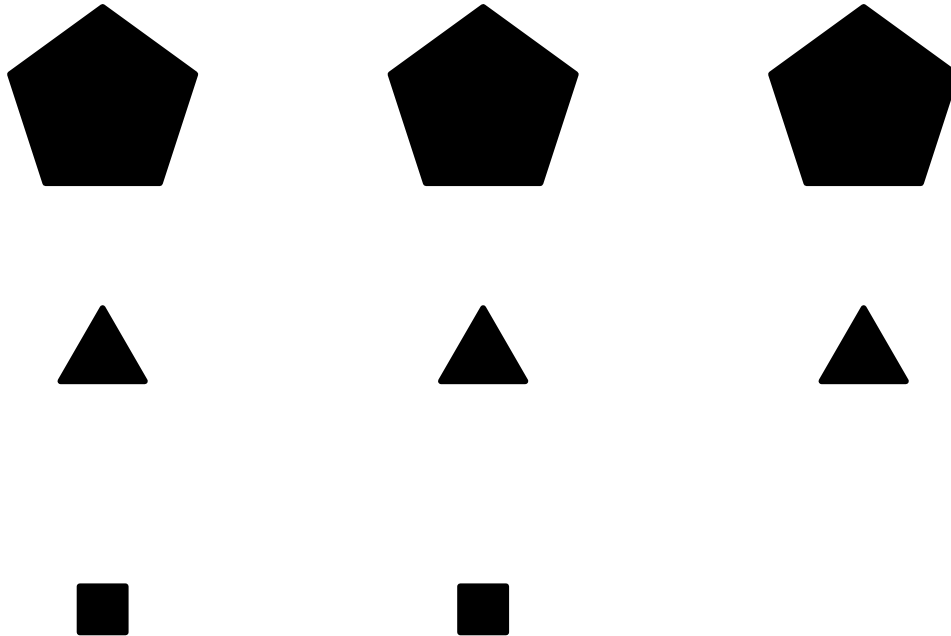
**ic.neg**



## **Gemella 2**

Odio massimiliano dal profondo del mio cuore





```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
```

```

##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {

```

```

##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {

```

```

##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##      ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##      ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##      ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##      m.c = m.correct
##      if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##          unlist(m.c$shade)), na.rm = T) == T) {
##          m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##              "black"))))
##      }
##      else if (any(unlist(m.c$shade == "white")) == T) {
##          m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##              "white"))))
##      }
##      else if (is.na(any(unlist(m.c$shade))) == T) {
##          m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##      }
##      else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##          T) {
##          m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##      }
##      ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##      ic.col = split.m[[1]]
##      if (is.na(ic.col$shade[[1]]) == T) {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "white") {
##          ic.col$shade[[1]] = "black"
##      }
##      else if (ic.col$shade[[1]] == "black") {
##          ic.col$shade[[1]] = "white"
##      }
##      else if (ic.col$shade[[1]] == "grey") {
##          ic.col$shade[[1]] = "white"
##      }
## } else {
##      if (is.null(which.element) == T & length(split.m) != 1) {

```

```

##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {

```

```

##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"

```

```

## }
## debug: if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"

```

```

##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"

```



```

##      }
##      else if (split.m[[new_index]]$shade[[1]] == "grey") {
##          split.m[[new_index]]$shade[[1]] = "white"
##      }
##      ic.col = cof(ic.temp, split.m[[new_index]])
##  }
##  else if (is.null(which.element) == F & length(split.m) !=
##      1) {
##      if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##              ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {

```

```

## m.c = m.correct
## if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
## unlist(m.c$shade)), na.rm = T) == T) {
## m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
## "black"))))
## }
## else if (any(unlist(m.c$shade == "white")) == T) {
## m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
## "white"))))
## }
## else if (is.na(any(unlist(m.c$shade))) == T) {
## m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
## }
## else if (any(grep("line", unlist(m5$S9$shade)) == T) ==
## T) {
## m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
## }
## ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
## ic.col = split.m[[1]]
## if (is.na(ic.col$shade[[1]]) == T) {
## ic.col$shade[[1]] = "black"
## }
## else if (ic.col$shade[[1]] == "white") {
## ic.col$shade[[1]] = "black"
## }
## else if (ic.col$shade[[1]] == "black") {
## ic.col$shade[[1]] = "white"
## }
## else if (ic.col$shade[[1]] == "grey") {
## ic.col$shade[[1]] = "white"
## }
## } else {
## if (is.null(which.element) == T & length(split.m) != 1) {
## new_index = sample(index_elements, 1)
## ic.temp = hide(m.correct, new_index)
## if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
## split.m[[new_index]]$shade[[1]] = "black"
## }
## else if (split.m[[new_index]]$shade[[1]] == "white") {
## split.m[[new_index]]$shade[[1]] = "black"
## }
## else if (split.m[[new_index]]$shade[[1]] == "black") {
## split.m[[new_index]]$shade[[1]] = "white"
## }
## else if (split.m[[new_index]]$shade[[1]] == "grey") {
## split.m[[new_index]]$shade[[1]] = "white"
## }
## ic.col = cof(ic.temp, split.m[[new_index]])
## }
## else if (is.null(which.element) == F & length(split.m) !=
## 1) {
## if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
## split.m[[which.element]]$shade[[1]] = "black"

```

```

##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                        ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##              1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"

```

```

##      }
##      else if (split.m[[which.element]]$shade[[1]] == "white") {
##          split.m[[which.element]]$shade[[1]] = "black"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "black") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      else if (split.m[[which.element]]$shade[[1]] == "grey") {
##          split.m[[which.element]]$shade[[1]] = "white"
##      }
##      ic.temp = split.m[[which.element]]
##      for (i in 1:length(which(names(split.m) != which.element))) {
##          ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                        ic.temp)
##      }
##      ic.col = ic.temp
##  }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)

```

**correct**



**r.top**



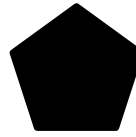
**r.diag**



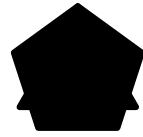
**r.left**



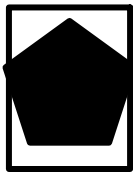
**wp.copy**



**wp.matrix**



**d.union**



**ic.scale**



**ic.flip**



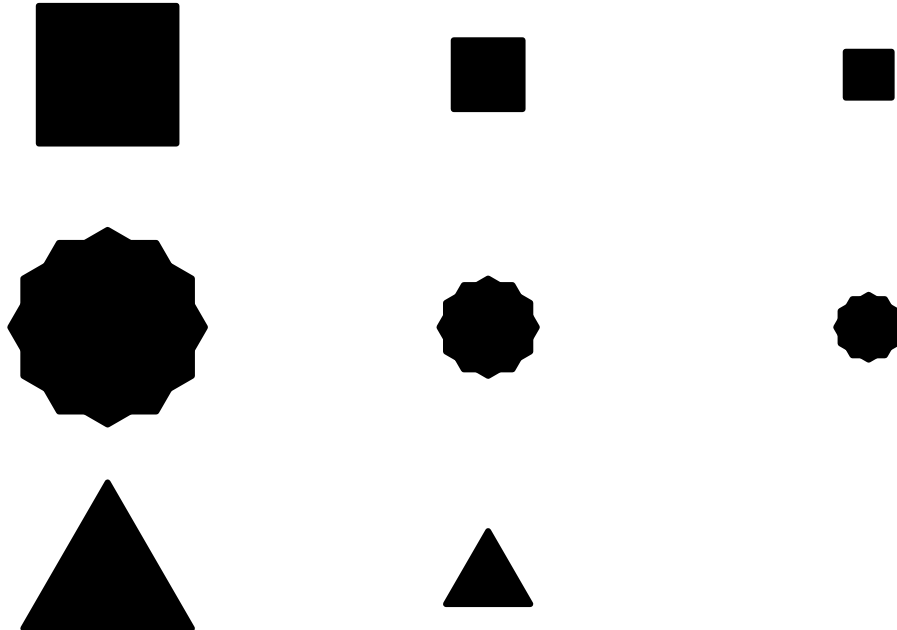
**ic.inc**



**ic.neg**



## Forma e dimensione Verticale e orizzontale



```
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
## }
```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
## }

```

```

##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "white") {
##             split.m[[which.element]]$shade[[1]] = "black"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "black") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         else if (split.m[[which.element]]$shade[[1]] == "grey") {
##             split.m[[which.element]]$shade[[1]] = "white"
##         }
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"

```



```

## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##   ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##   ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##   ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {

```

```

##   if (is.null(which.element) == T & length(split.m) != 1) {
##       new_index = sample(index_elements, 1)
##       ic.temp = hide(m.correct, new_index)
##       if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "white") {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "black") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "grey") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##       1) {
##       if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "white") {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "black") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "grey") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       ic.temp = split.m[[which.element]]
##       for (i in 1:length(which(names(split.m) != which.element))) {
##           ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##               ic.temp)
##       }
##       ic.col = ic.temp
##   }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]])) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## }
## } else {

```

```

##   if (is.null(which.element) == T & length(split.m) != 1) {
##       new_index = sample(index_elements, 1)
##       ic.temp = hide(m.correct, new_index)
##       if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "white") {
##           split.m[[new_index]]$shade[[1]] = "black"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "black") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       else if (split.m[[new_index]]$shade[[1]] == "grey") {
##           split.m[[new_index]]$shade[[1]] = "white"
##       }
##       ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##       1) {
##       if (is.na(split.m[[which.element]]$shade[[1]])) == T) {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "white") {
##           split.m[[which.element]]$shade[[1]] = "black"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "black") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       else if (split.m[[which.element]]$shade[[1]] == "grey") {
##           split.m[[which.element]]$shade[[1]] = "white"
##       }
##       ic.temp = split.m[[which.element]]
##       for (i in 1:length(which(names(split.m) != which.element))) {
##           ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##               ic.temp)
##       }
##       ic.col = ic.temp
##   }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]])) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {

```

```

##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)
## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##     m.c = m.correct
##     if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##         unlist(m.c$shade)), na.rm = T) == T) {
##         m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##             "black"))))
##     }
##     else if (any(unlist(m.c$shade == "white")) == T) {
##         m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##             "white"))))
##     }
##     else if (is.na(any(unlist(m.c$shade))) == T) {
##         m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade))))
##     }
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {

```

```

##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {

```

```

##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##         split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
## }
## else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)
## Called from: ic.neg(m, which.element = which.element, mat.type = mat.type)

```

```

## debug: if (length(index_elements) == 1 & length(split.m) != 1) {
##   m.c = m.correct
##   if (any(unlist(m.c$shade == "black"), na.rm = T) | any(grep("line",
##     unlist(m.c$shade)), na.rm = T) == T) {
##     m.c$shade[[1]] = rep("white", length(any(unlist(m.c$shade ==
##       "black"))))
##   }
##   else if (any(unlist(m.c$shade == "white")) == T) {
##     m.c$shade[[1]] = rep("black", length(any(unlist(m.c$shade ==
##       "white"))))
##   }
##   else if (is.na(any(unlist(m.c$shade))) == T) {
##     m.c$shade[[1]] = rep("black", length(is.na(any(unlist(m.c$shade)))))
##   }
##   else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##     T) {
##     m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##   }
##   ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##   ic.col = split.m[[1]]
##   if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
##   }
##   else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
##   }
##   else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
##   }
## } else {
##   if (is.null(which.element) == T & length(split.m) != 1) {
##     new_index = sample(index_elements, 1)
##     ic.temp = hide(m.correct, new_index)
##     if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "white") {
##       split.m[[new_index]]$shade[[1]] = "black"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "black") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     else if (split.m[[new_index]]$shade[[1]] == "grey") {
##       split.m[[new_index]]$shade[[1]] = "white"
##     }
##     ic.col = cof(ic.temp, split.m[[new_index]])
##   }
##   else if (is.null(which.element) == F & length(split.m) !=
##     1) {
##     if (is.na(split.m[[which.element]]$shade[[1]]) == T) {

```

```

##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "black") {
##         ic.col$shade[[1]] = "white"
##     }
##     else if (ic.col$shade[[1]] == "grey") {
##         ic.col$shade[[1]] = "white"
##     }
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "black") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]]) == T) {

```



```

##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "white") {
##         split.m[[which.element]]$shade[[1]] = "black"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "black") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     else if (split.m[[which.element]]$shade[[1]] == "grey") {
##         split.m[[which.element]]$shade[[1]] = "white"
##     }
##     ic.temp = split.m[[which.element]]
##     for (i in 1:length(which(names(split.m) != which.element))) {
##         ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##             ic.temp)
##     }
##     ic.col = ic.temp
## }
## }
## debug: ic.col = split.m[[1]]
## debug: if (is.na(ic.col$shade[[1]]) == T) {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "white") {
##     ic.col$shade[[1]] = "black"
## } else if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: if (ic.col$shade[[1]] == "black") {
##     ic.col$shade[[1]] = "white"
## } else if (ic.col$shade[[1]] == "grey") {
##     ic.col$shade[[1]] = "white"
## }
## debug: ic.col$shade[[1]] = "white"
## debug: return(ic.col)

```

**correct**



**r.top**



**r.diag**



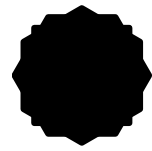
**r.left**



**wp.copy**



**wp.matrix**



**d.union**



**ic.scale**



**ic.flip**



**ic.inc**



**ic.neg**



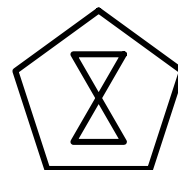
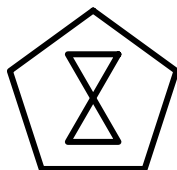
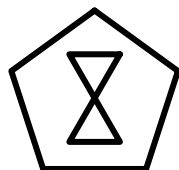
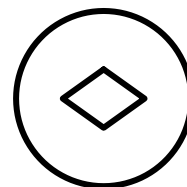
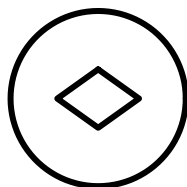
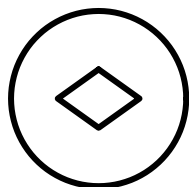
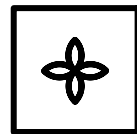
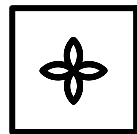
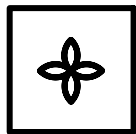
## **Gemella 1**

(gemella 1 è elisa)

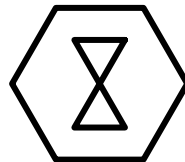
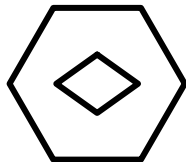
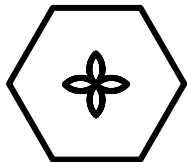
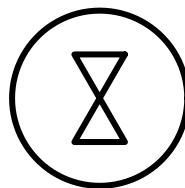
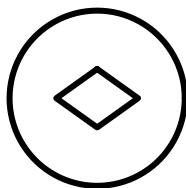
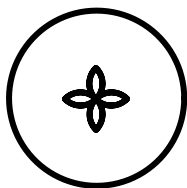
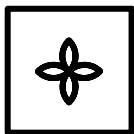
...

Forma e rimpianto

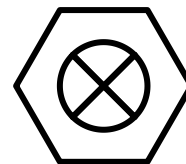
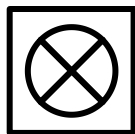
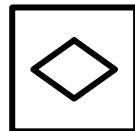
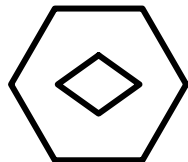
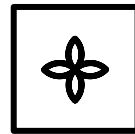
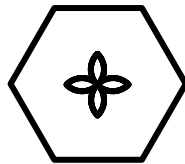
Verticale



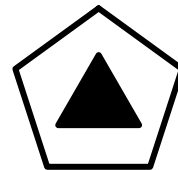
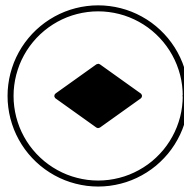
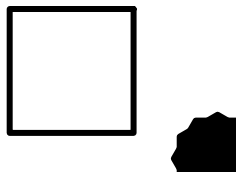
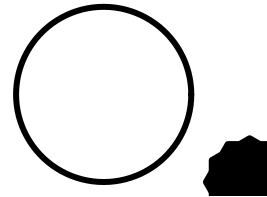
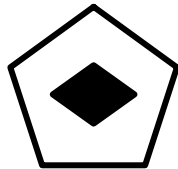
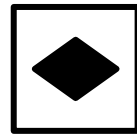
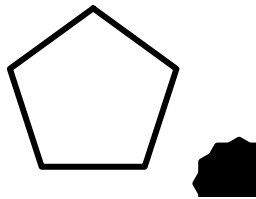
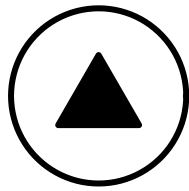
Verticale e orizzontale



TL-LR per la prima regola, V per la seconda

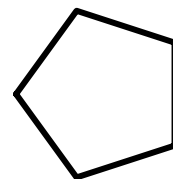
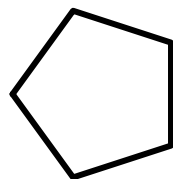
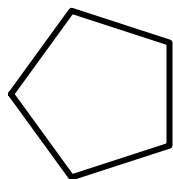
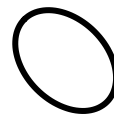
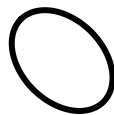
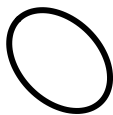
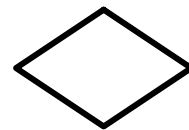
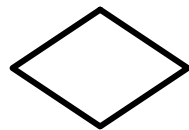
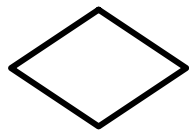


TL-LR per la prima, TR-LL per la seconda

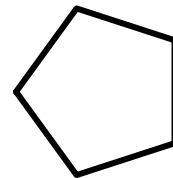
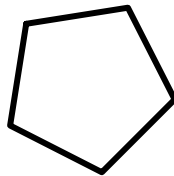
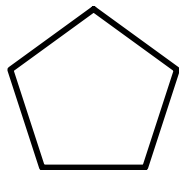
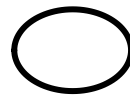
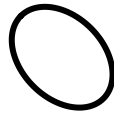
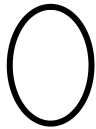
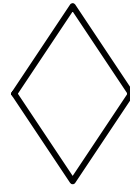
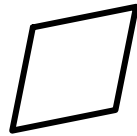
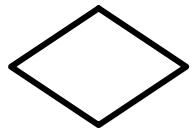


Forma e orientamento

Verticale

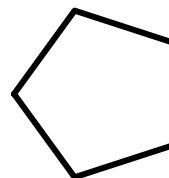
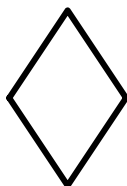
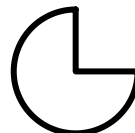
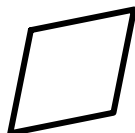
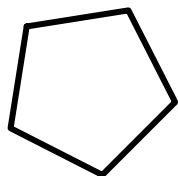
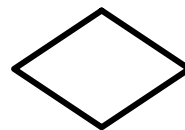
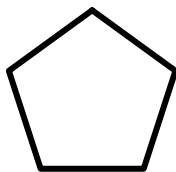


Verticale e orizzontale

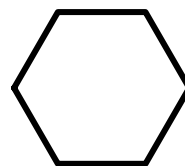
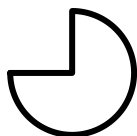
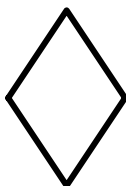
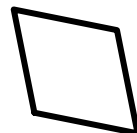
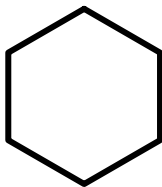
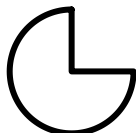
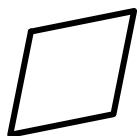
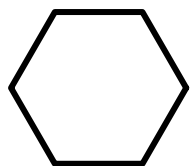




TL-LR sulla prima, verticale sulla seconda

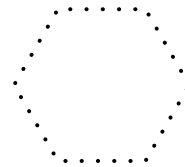
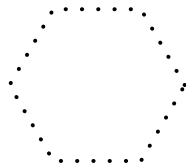
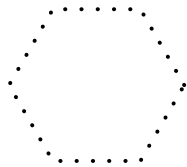
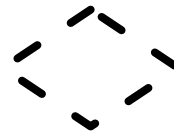
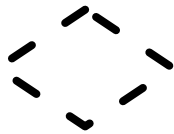
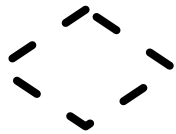


TR-LL sulla prima, TL-LR sulla seconda

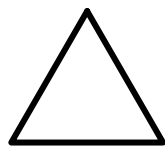
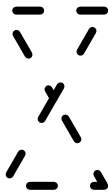
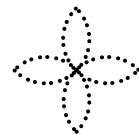
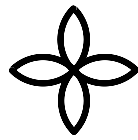
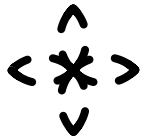


Forma e bordo

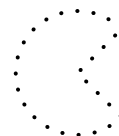
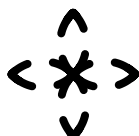
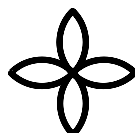
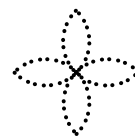
Verticale



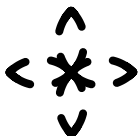
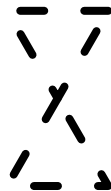
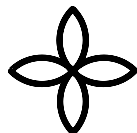
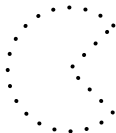
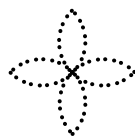
Verticale e orizzontale



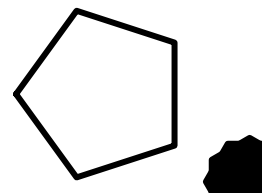
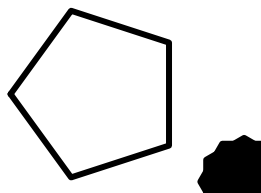
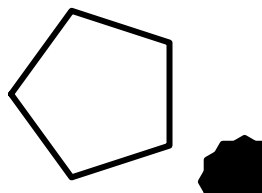
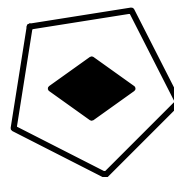
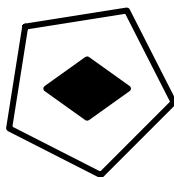
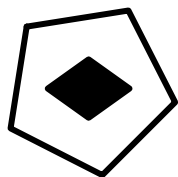
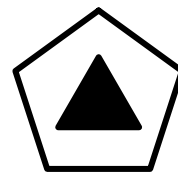
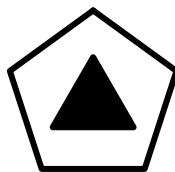
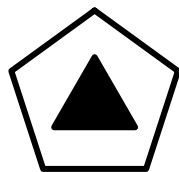
TL-LR sulla prima, V sulla seconda



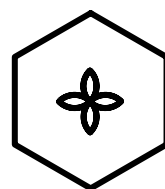
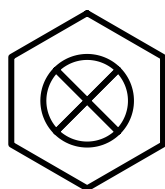
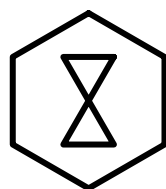
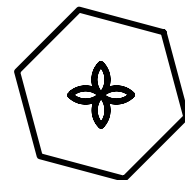
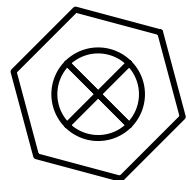
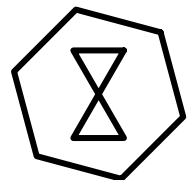
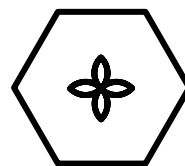
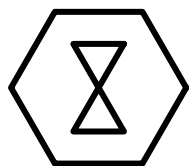
TL-LR sulla prima, TR-LL sulla seconda



Rimepimento e orientamento  
Verticale

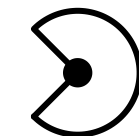
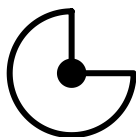
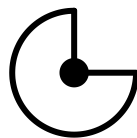


Vertical e orizzontale

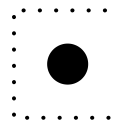
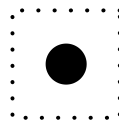
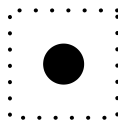
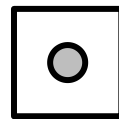
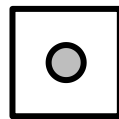
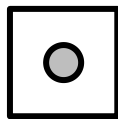
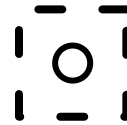




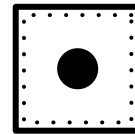
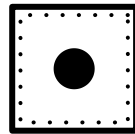
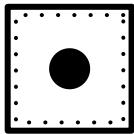
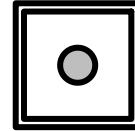
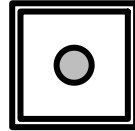
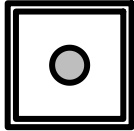
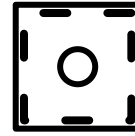
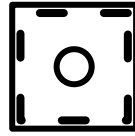
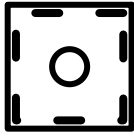
TL-LR entrambe



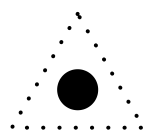
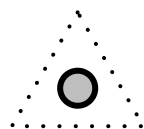
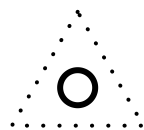
Riempimento e bordo  
Verticale



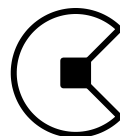
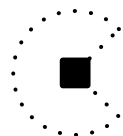
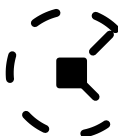
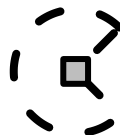
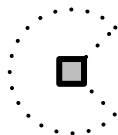
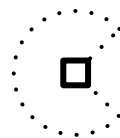
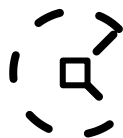
## Bonus



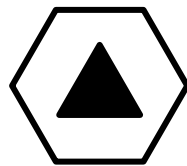
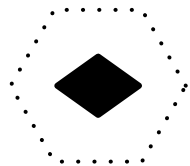
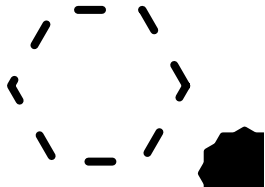
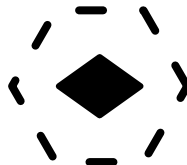
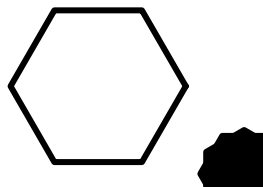
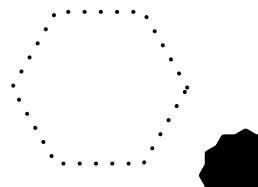
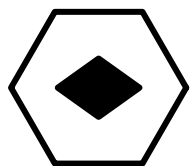
Verticale e orizzontale



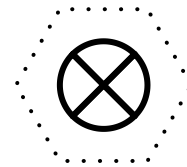
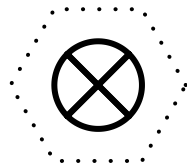
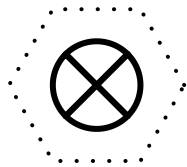
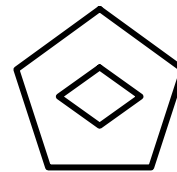
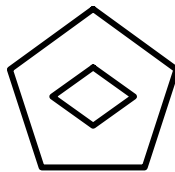
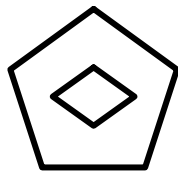
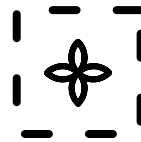
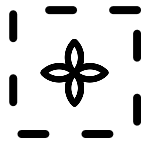
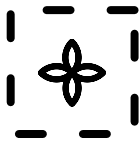
TL-LR, Verticale



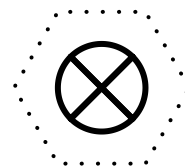
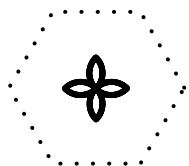
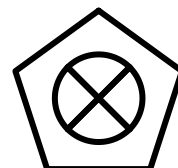
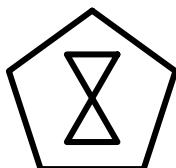
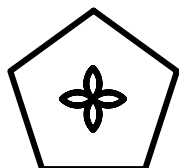
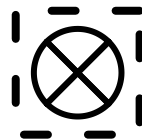
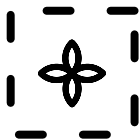
TL-LR



Forma riempimento bordo  
Verticale

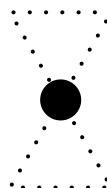
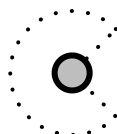
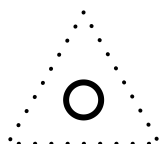
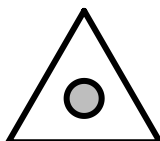
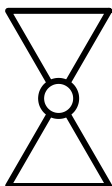


Verticale e orizzontale

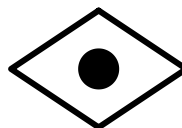
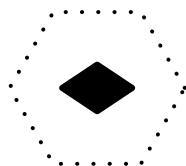
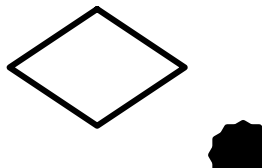
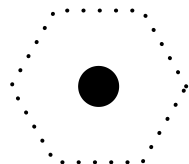
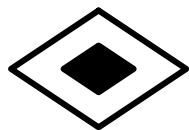




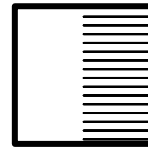
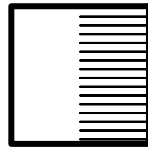
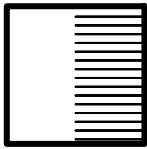
TL-LR, Verticale



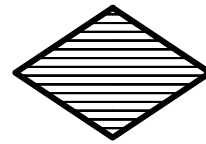
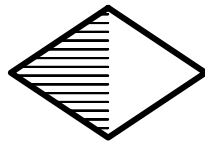
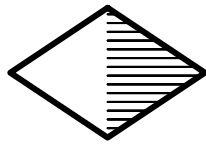
TL-LR, TR-LL



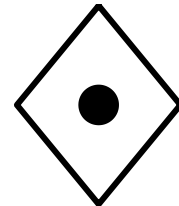
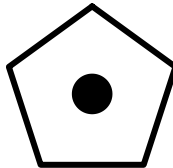
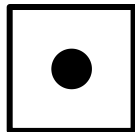
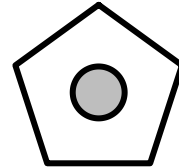
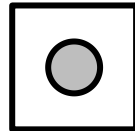
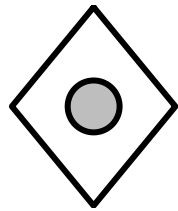
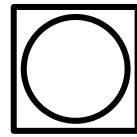
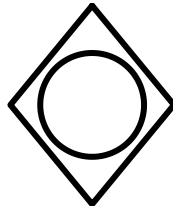
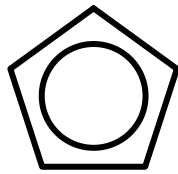
Forma riempimento dimensione  
Verticale



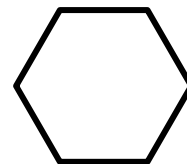
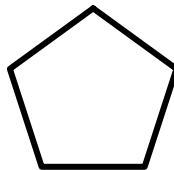
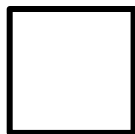
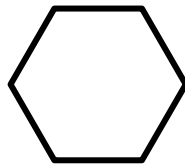
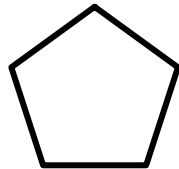
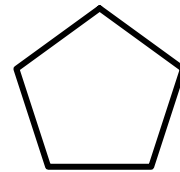
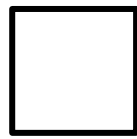
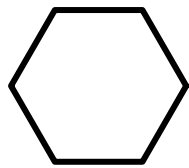
Verticale e orizzontale

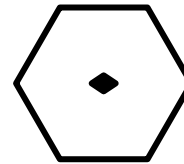
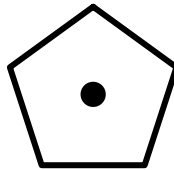
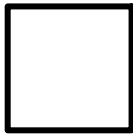
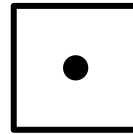
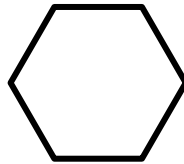
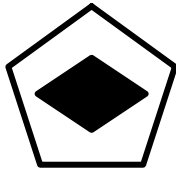
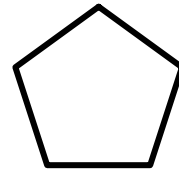
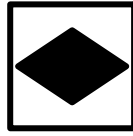
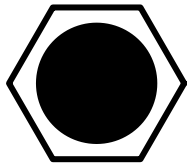


TL-LR, Verticale

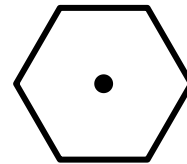
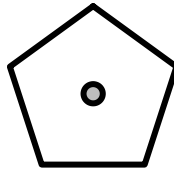
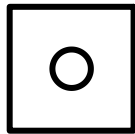
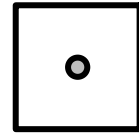
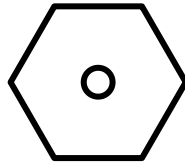
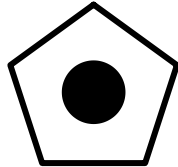
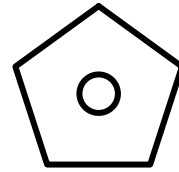
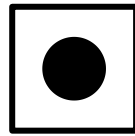
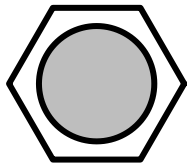


TR-LL, + altro





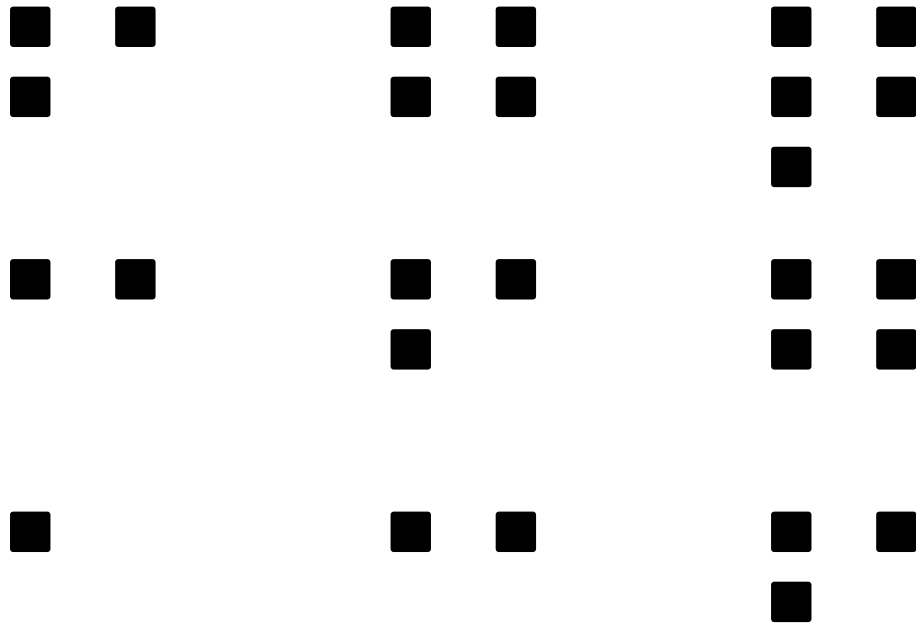
## Bonus



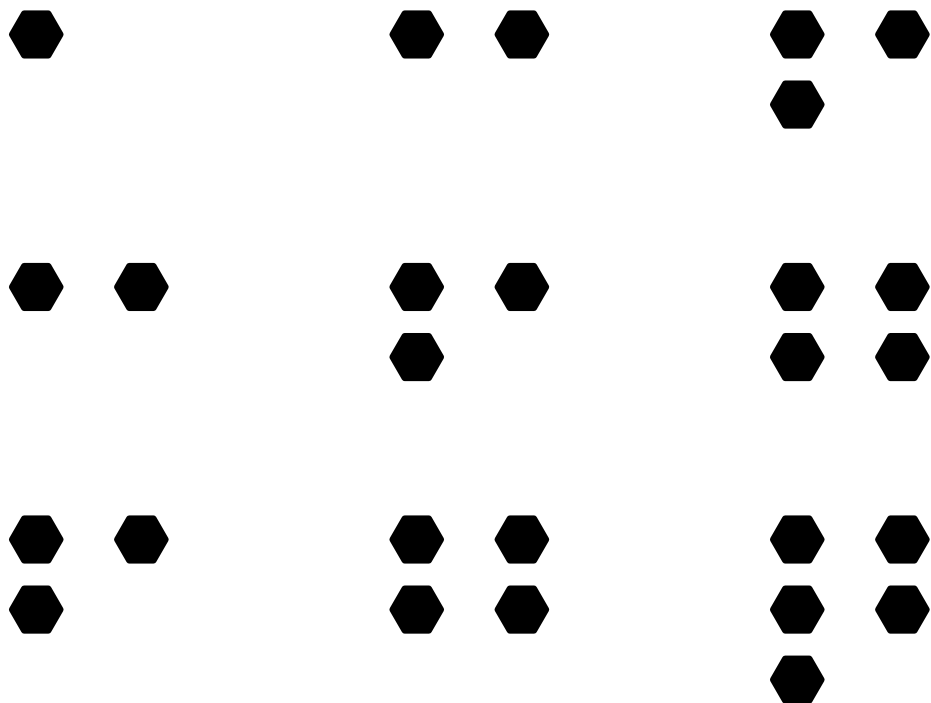


## Progressione Quantitativa

LL-TR (crescente orizzontale e decrescente verticale)



TL-LR

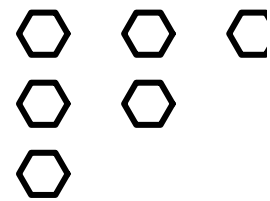
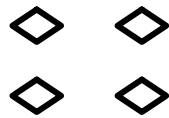
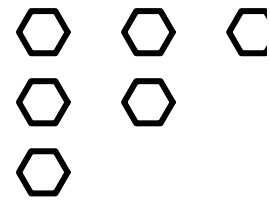
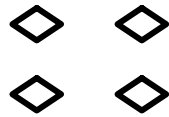
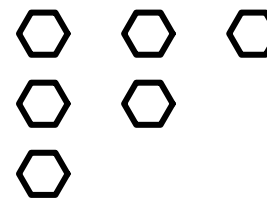
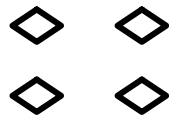


Forma, Progressione Quantitativa

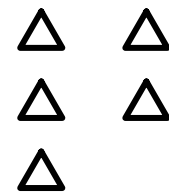
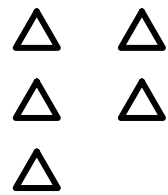
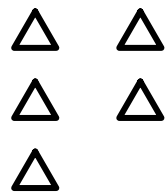
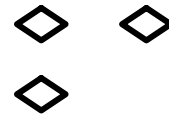
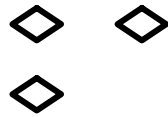
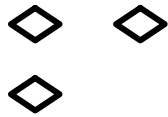
V su entrambe le regole



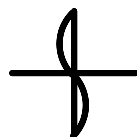
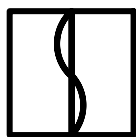
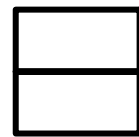
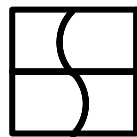
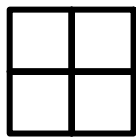
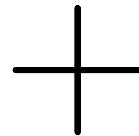
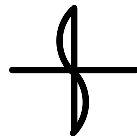
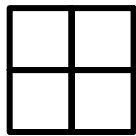
V per una regola e H per l'altra



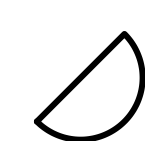
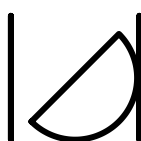
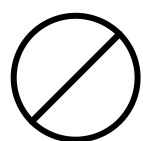
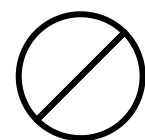
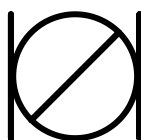
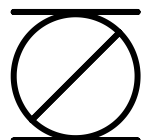
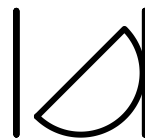
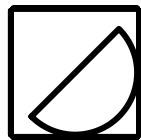
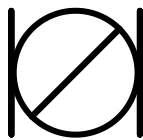
H per una regola e V per l'altra



Ragionamento induttivo simbolico/astratto  
 AND orizzontale



AND orizzontale o verticale



OR orizzontale

