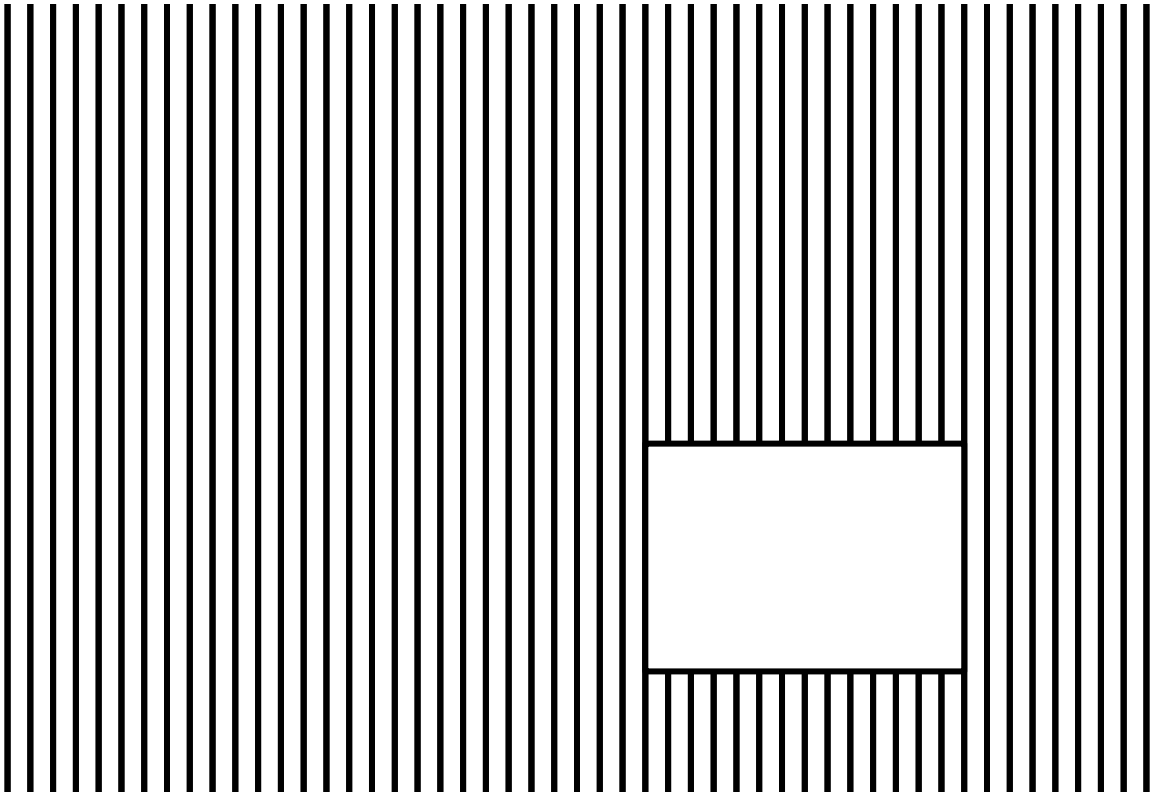
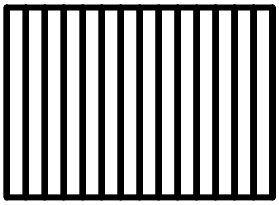
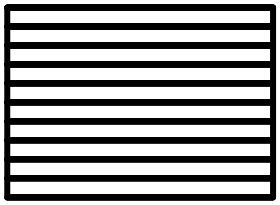
Available Matrix

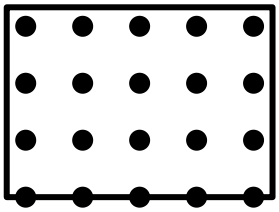
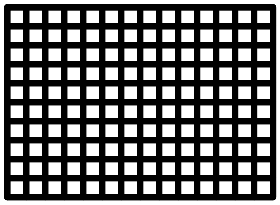
Contents

Monotematiche

Righe semplici Verticali



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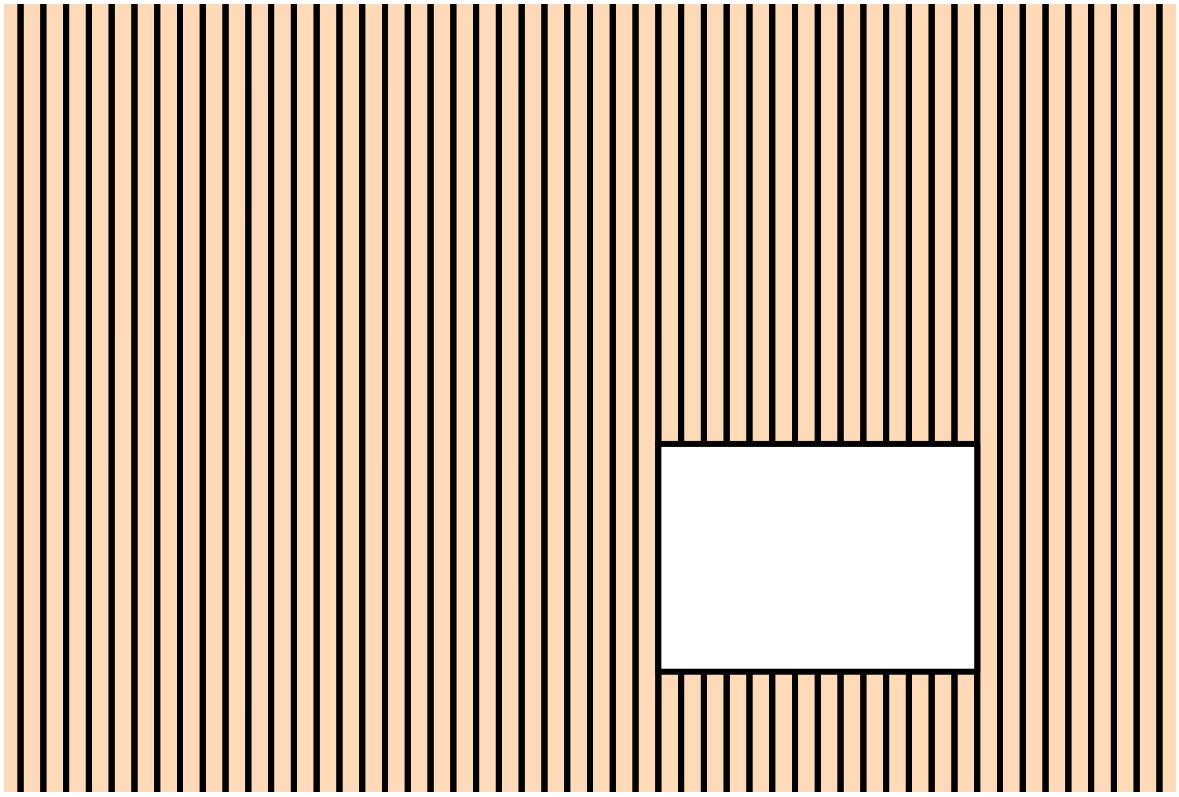

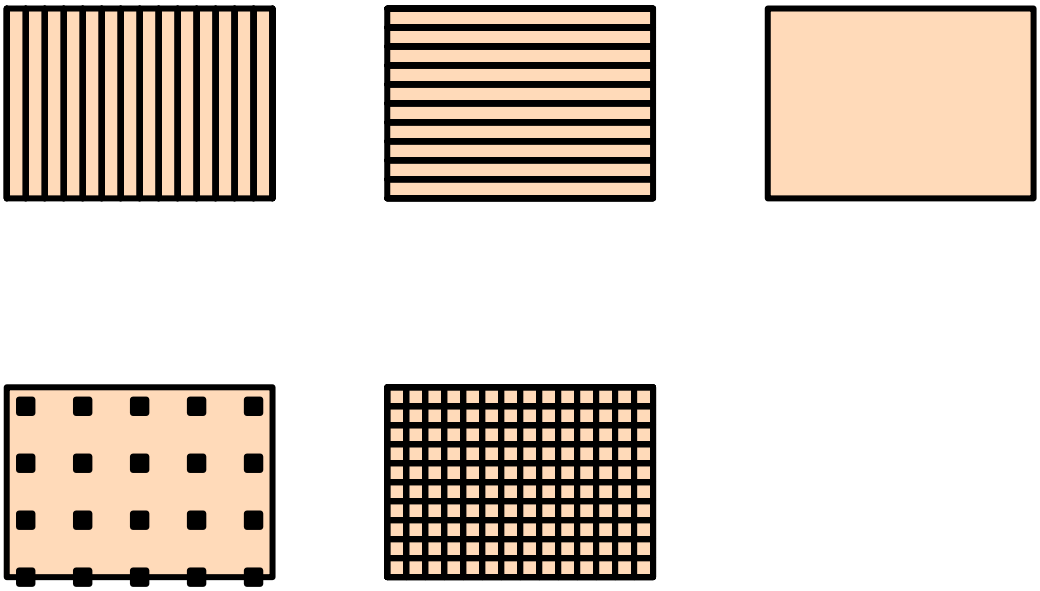

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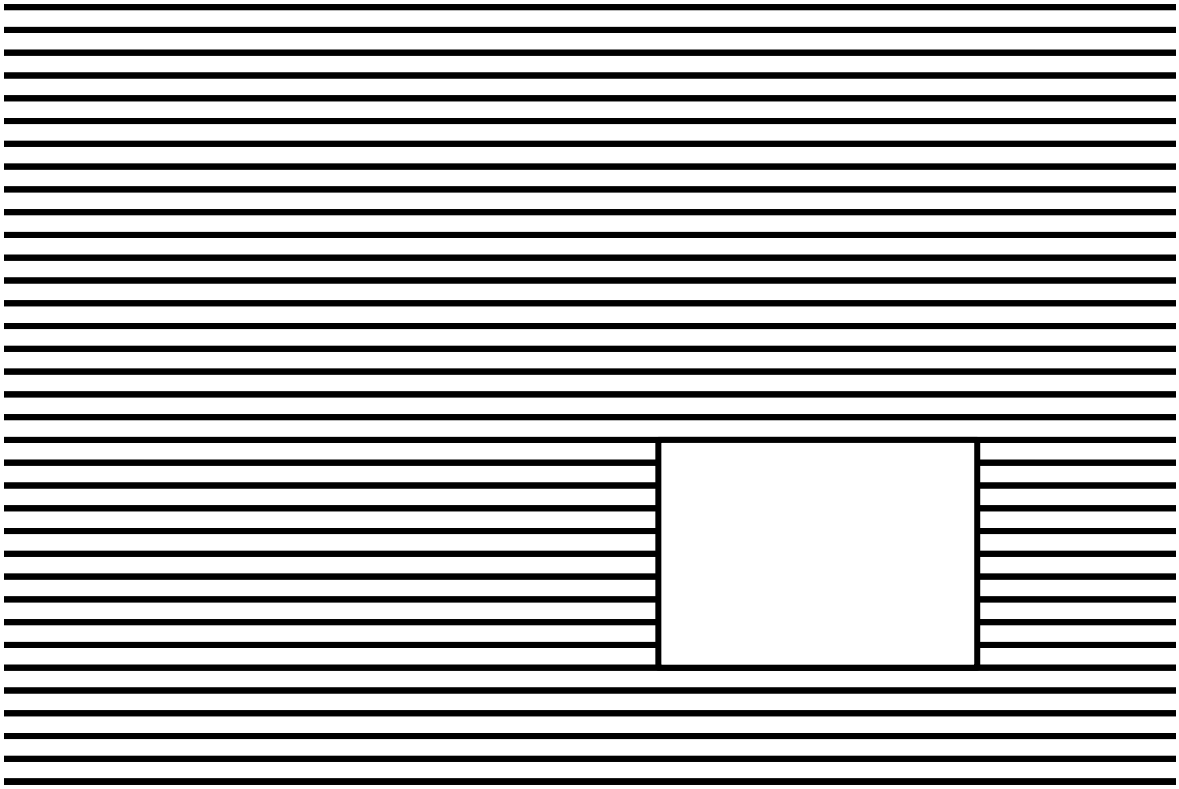
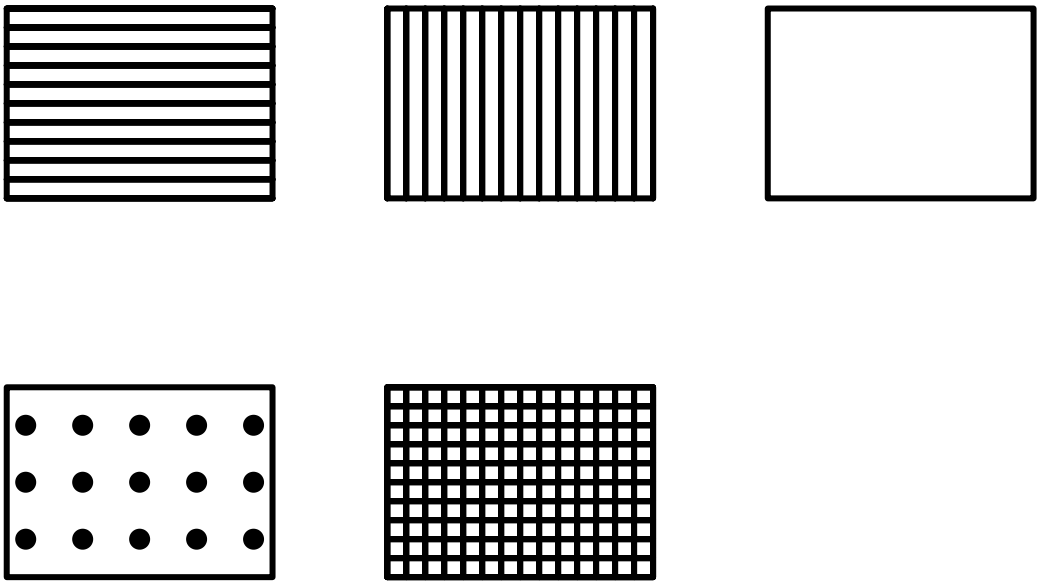
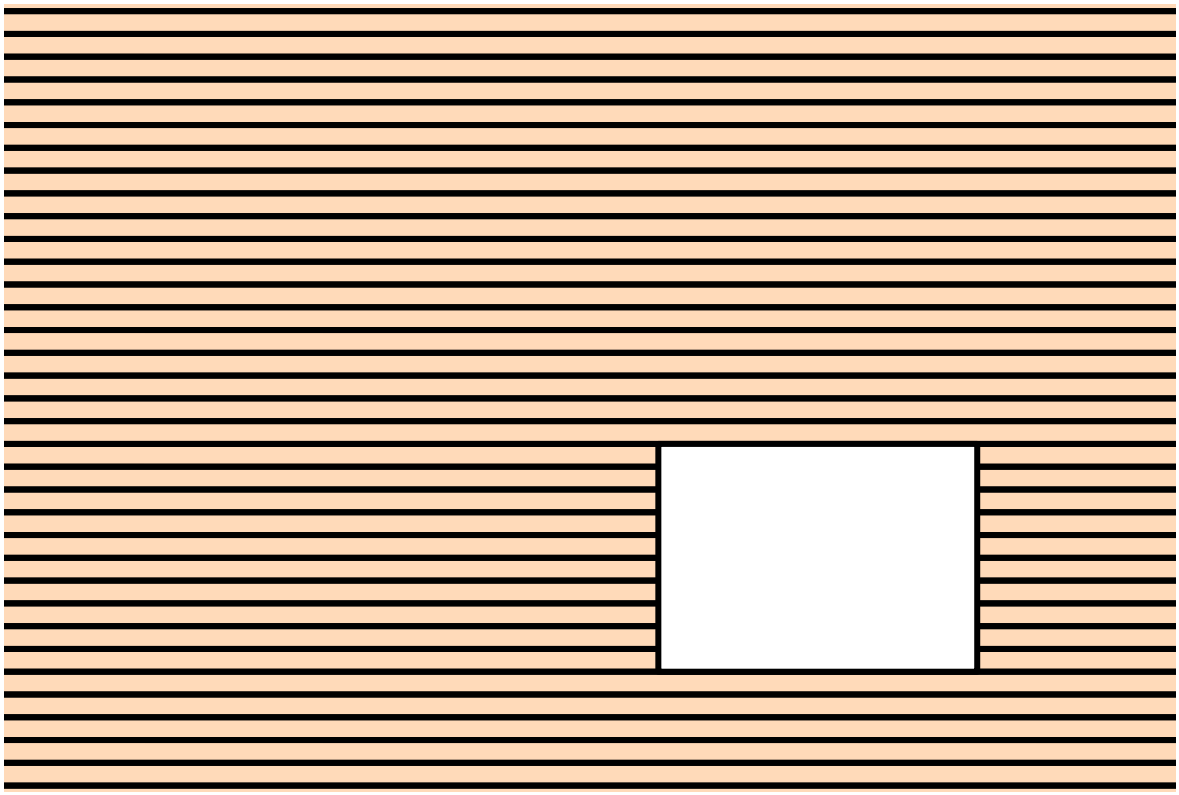
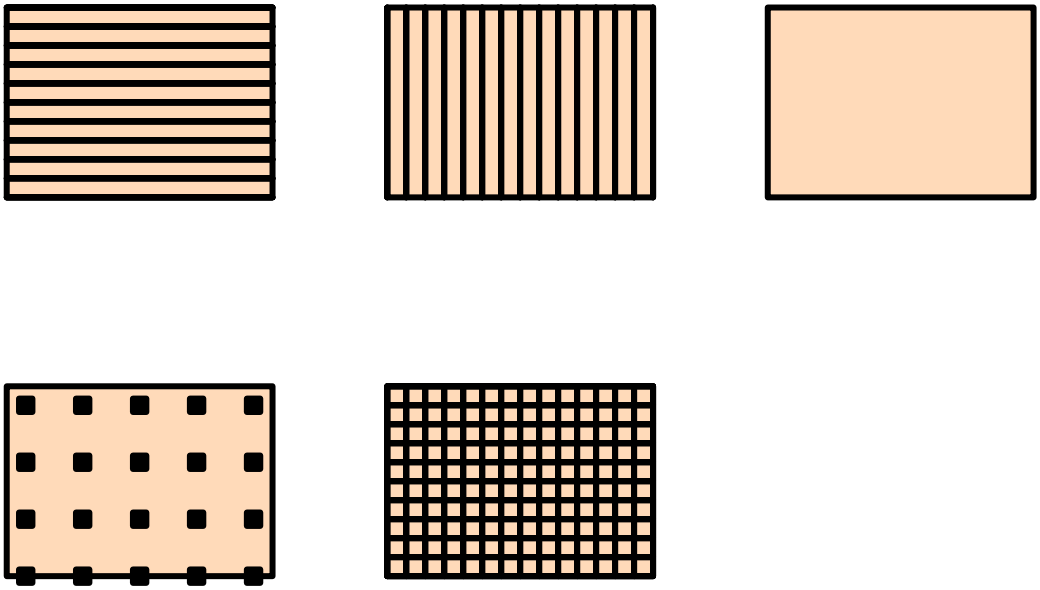




horizontal color





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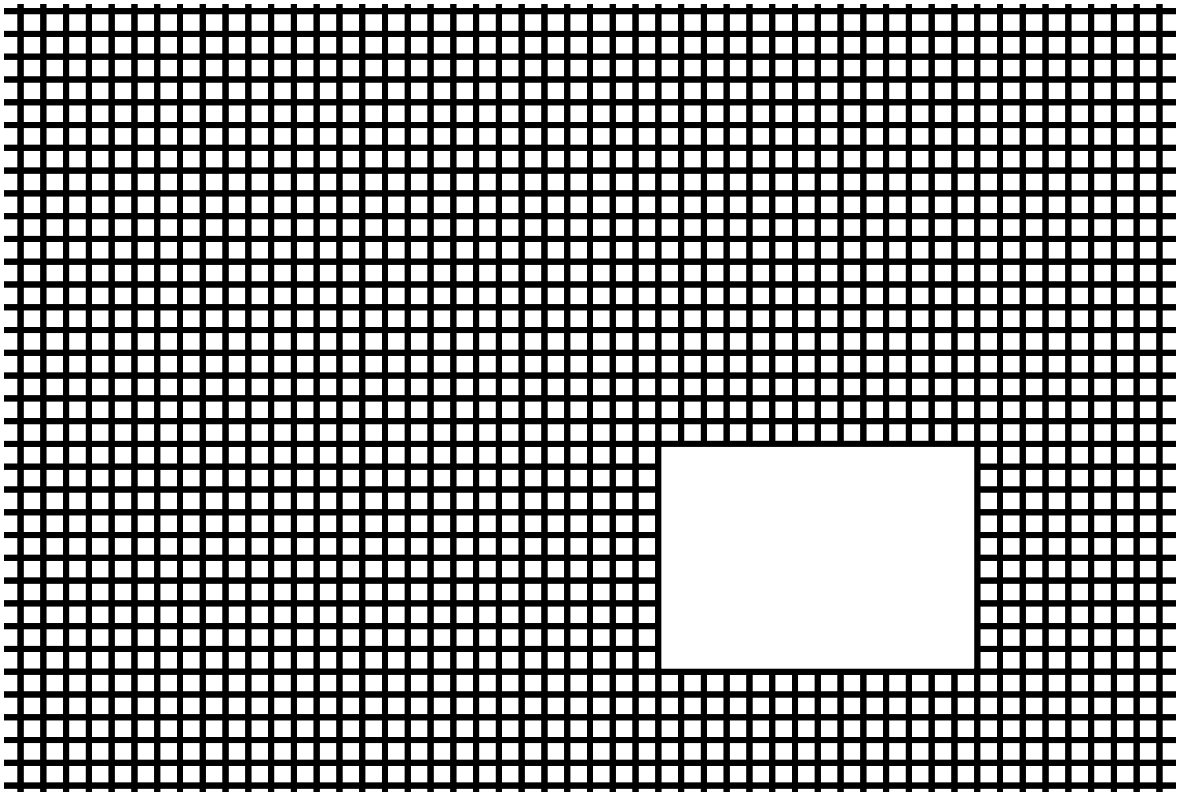

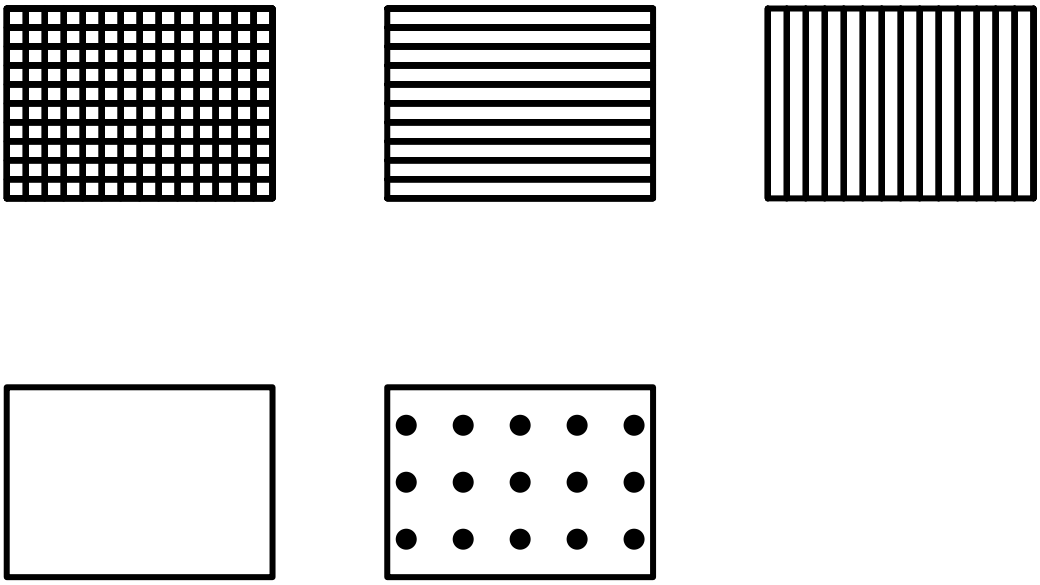

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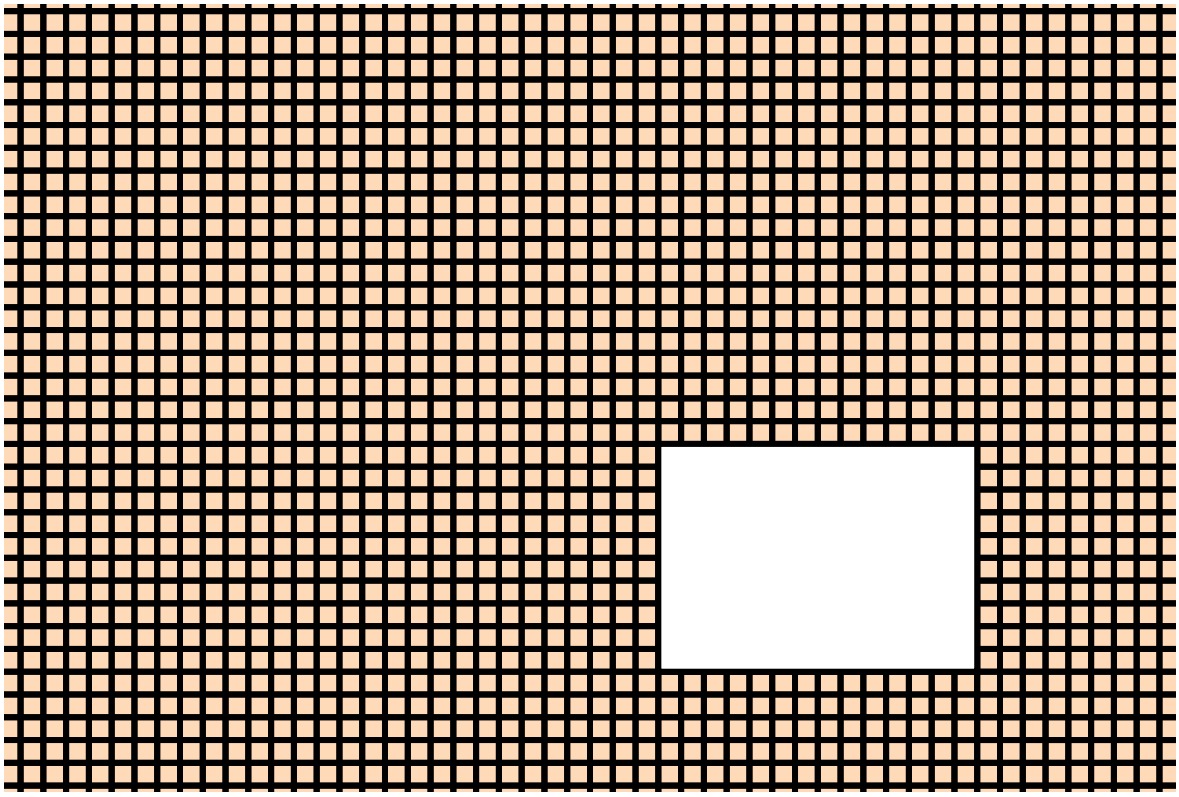
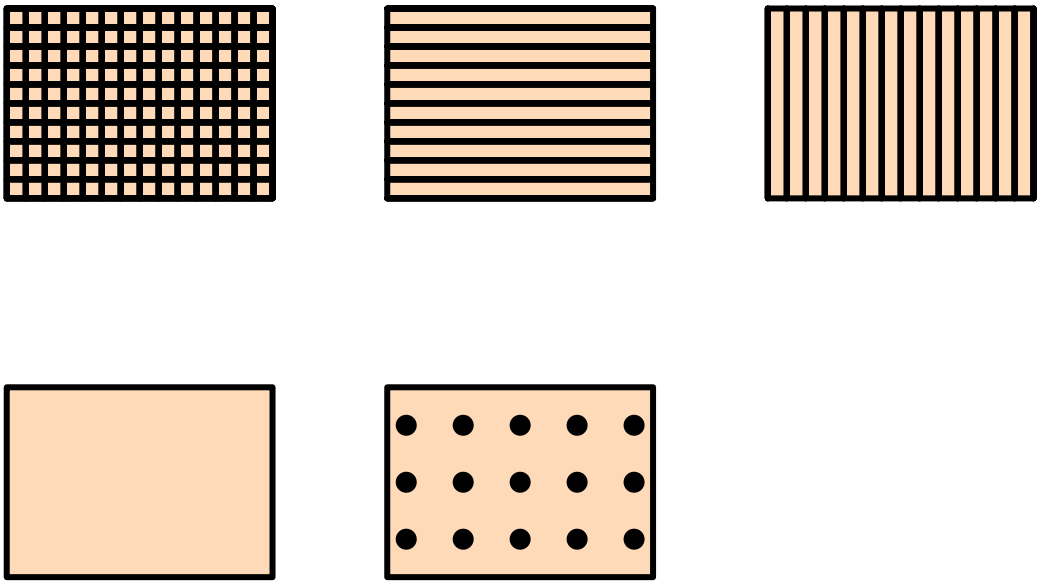
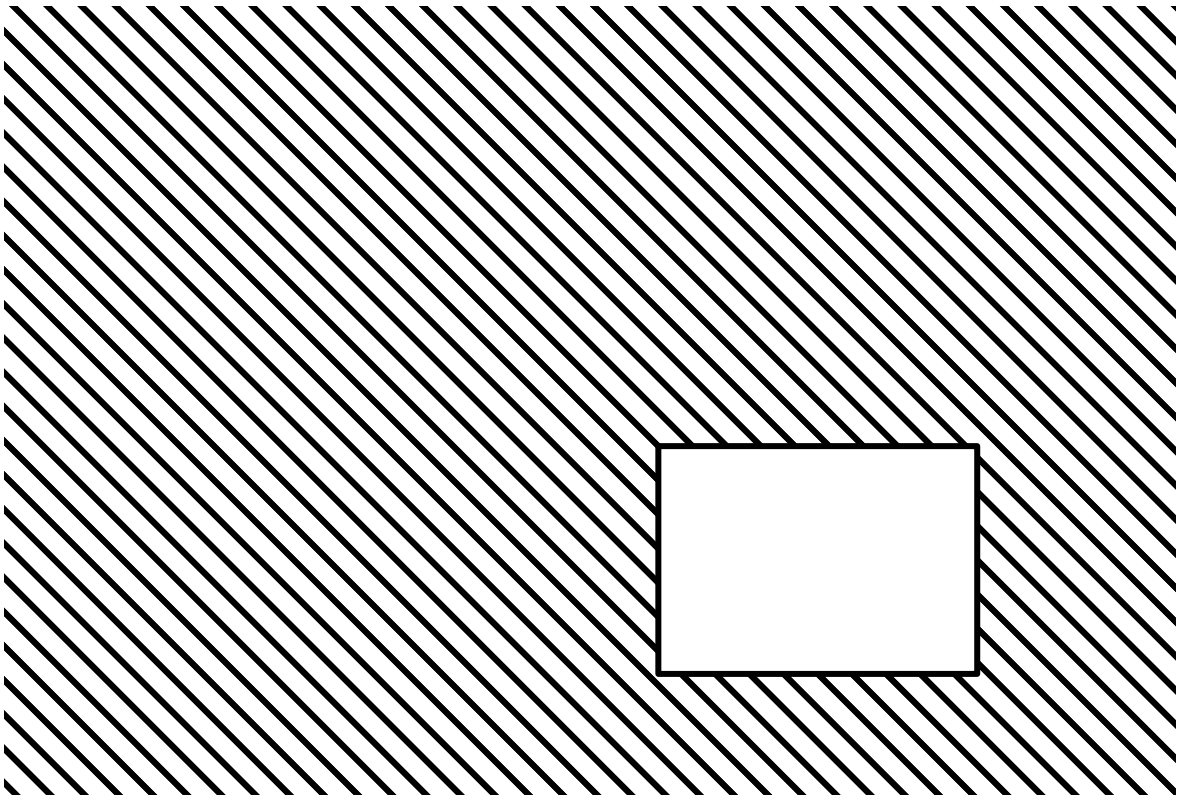
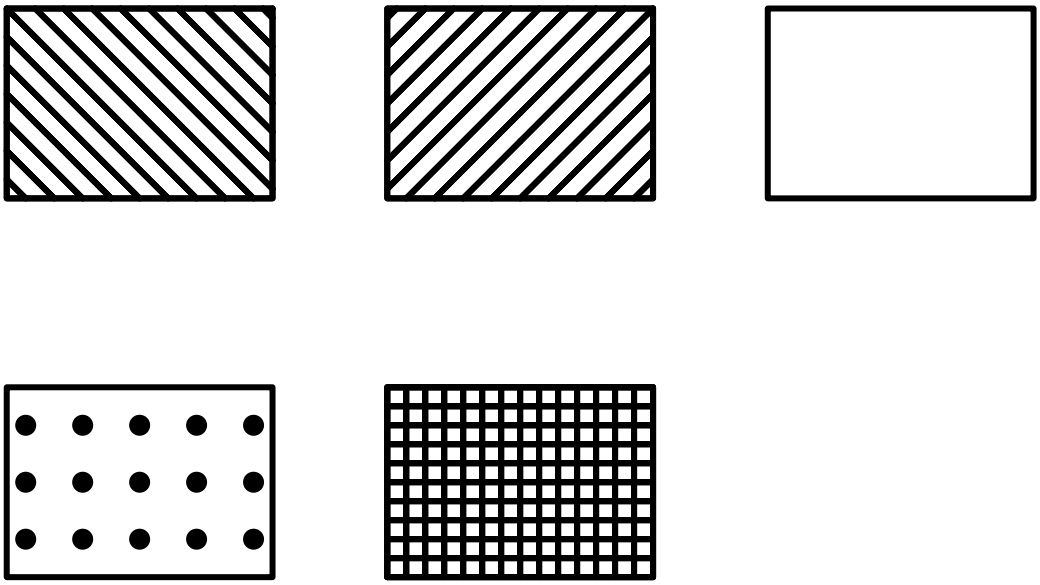


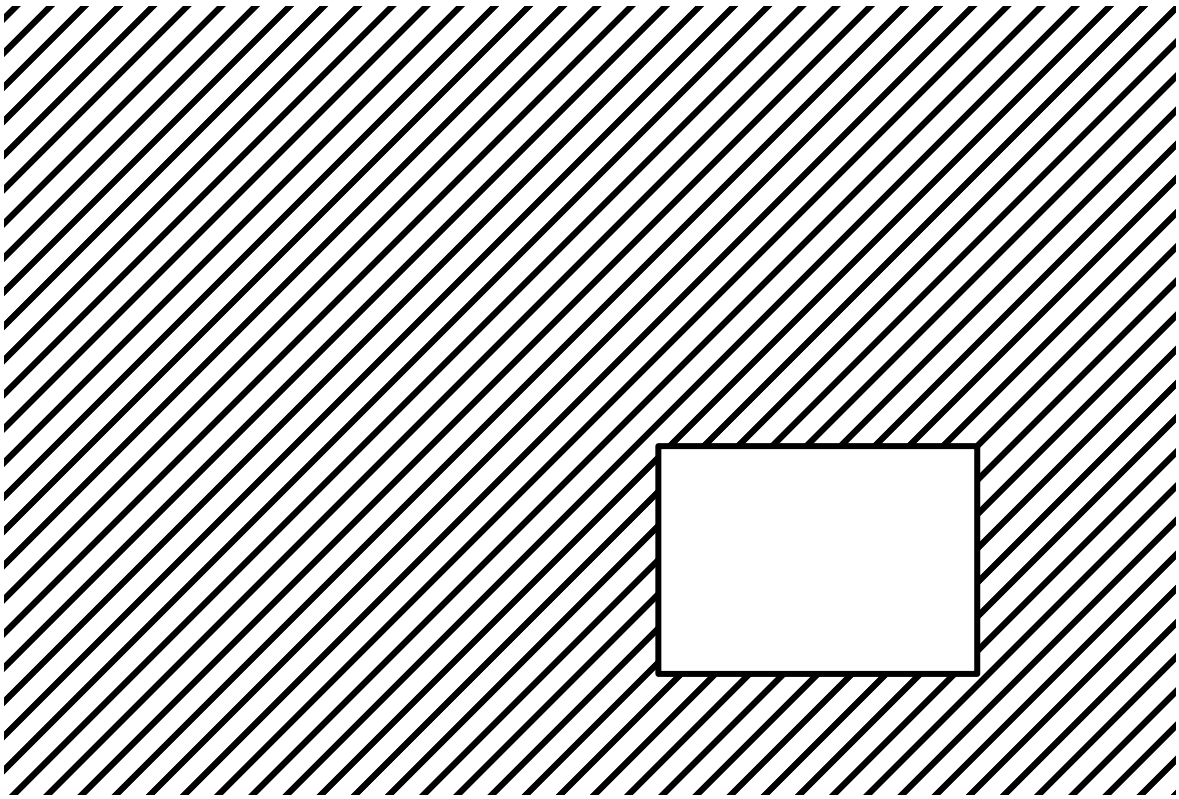


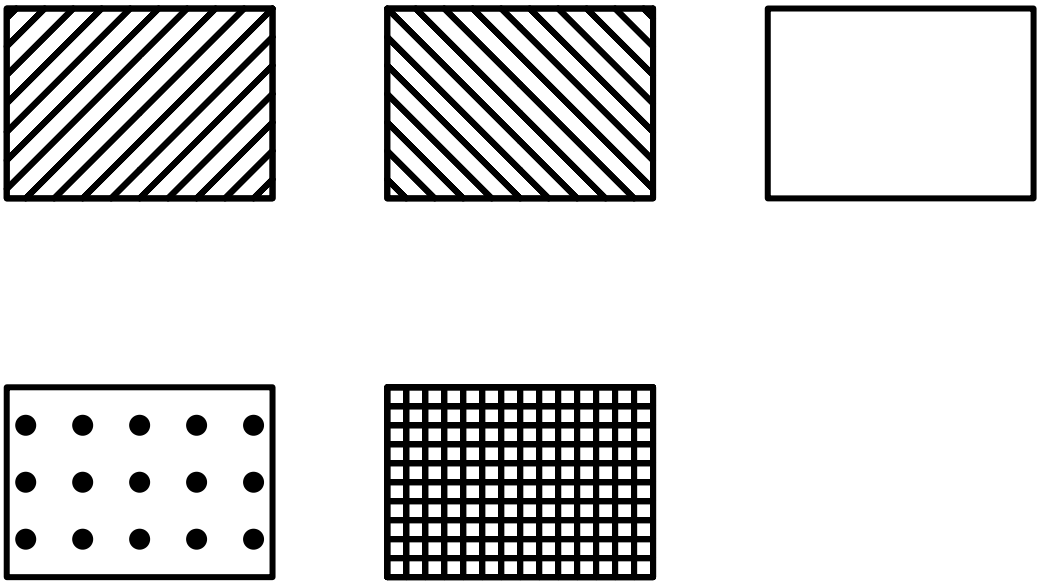
Diagonale principale



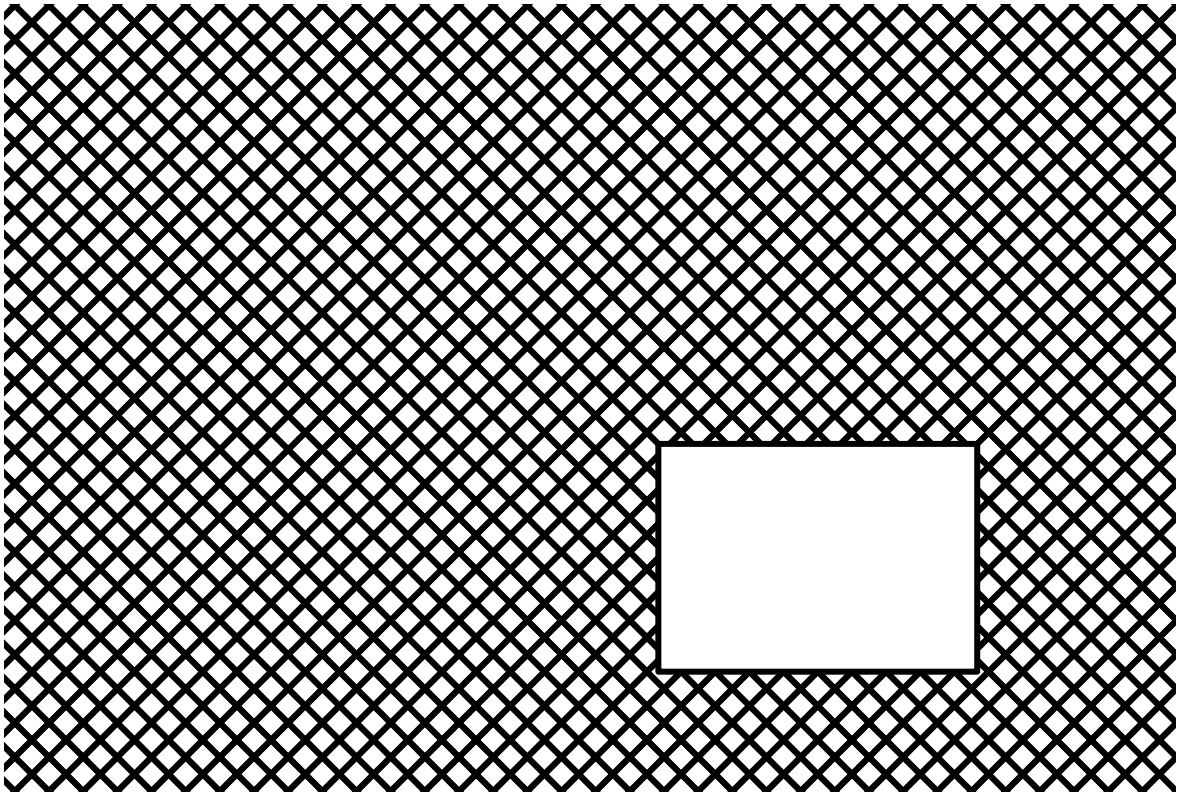


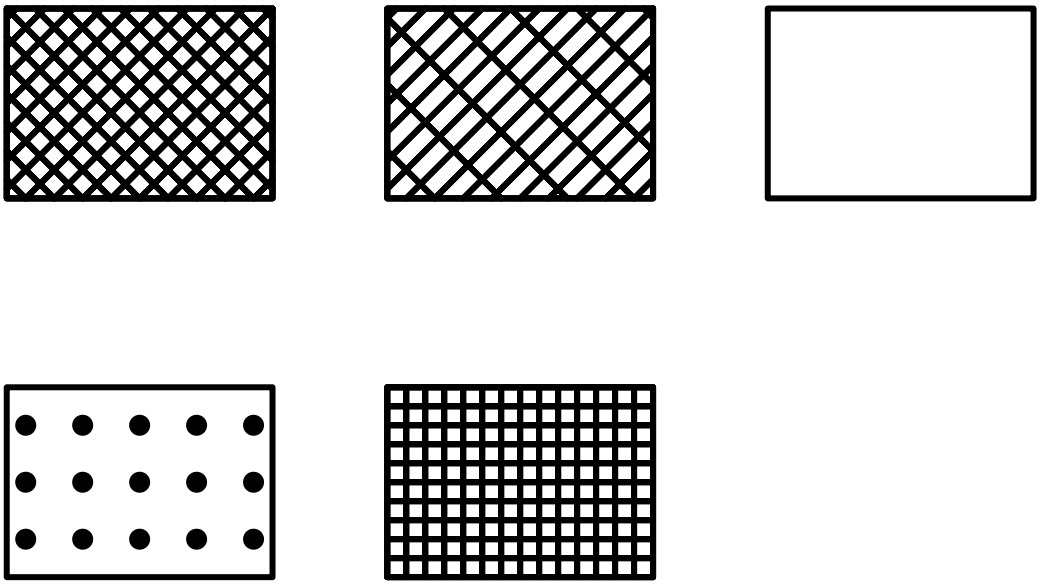
Diagonale secondaria



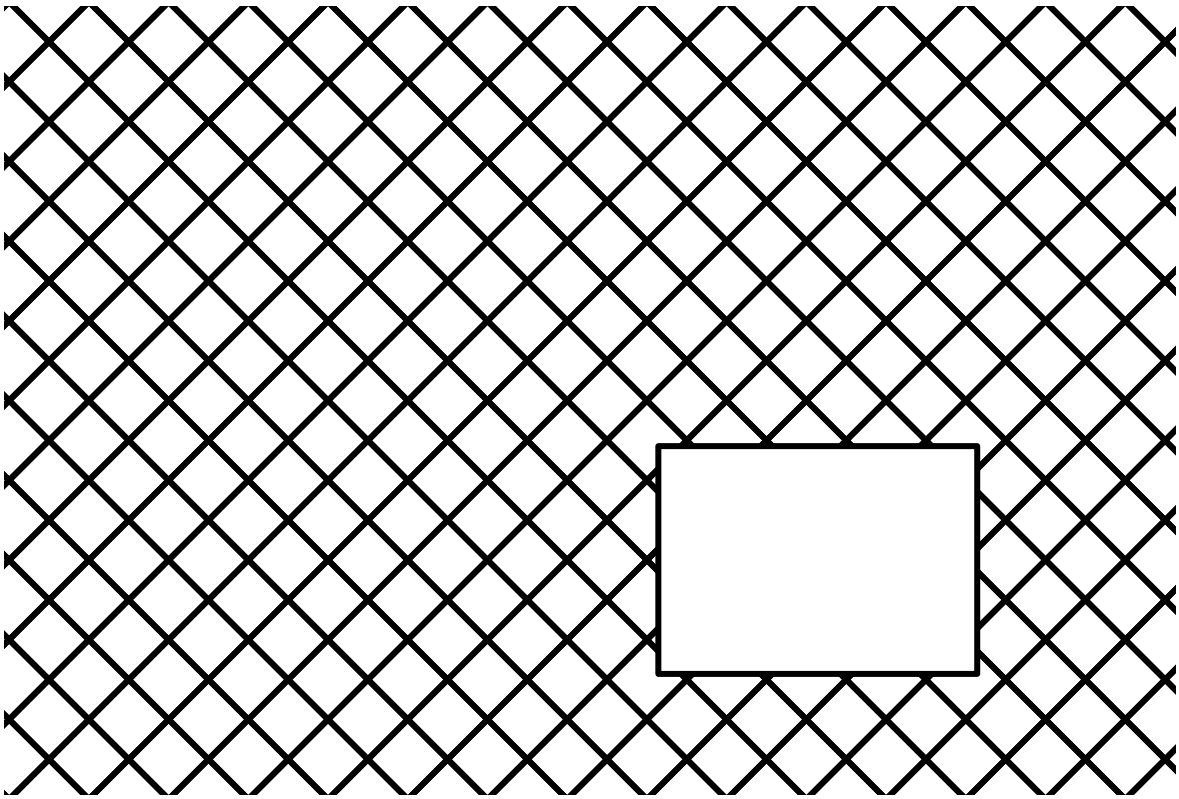


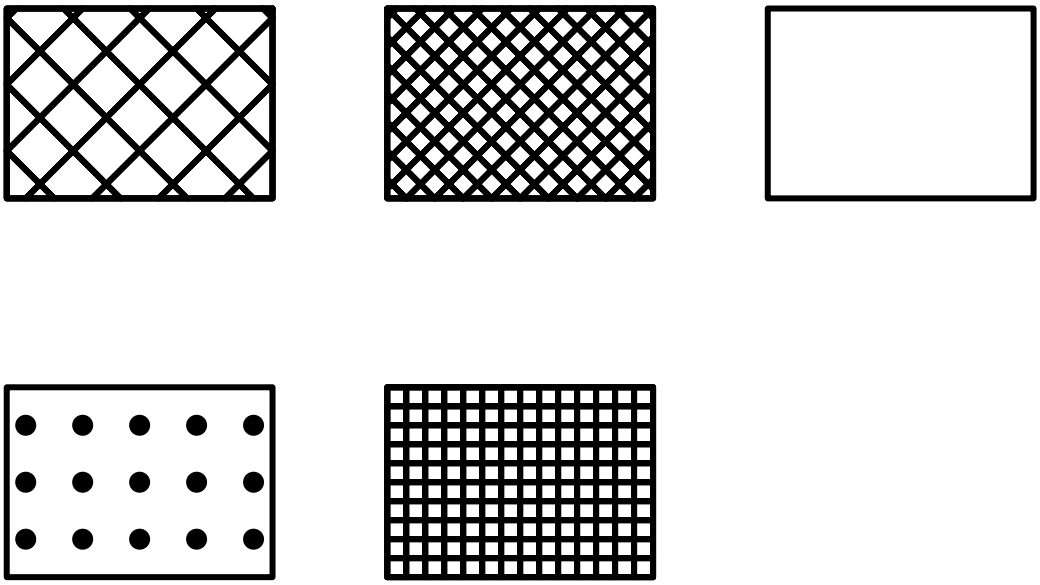
Insieme (mal di mare)



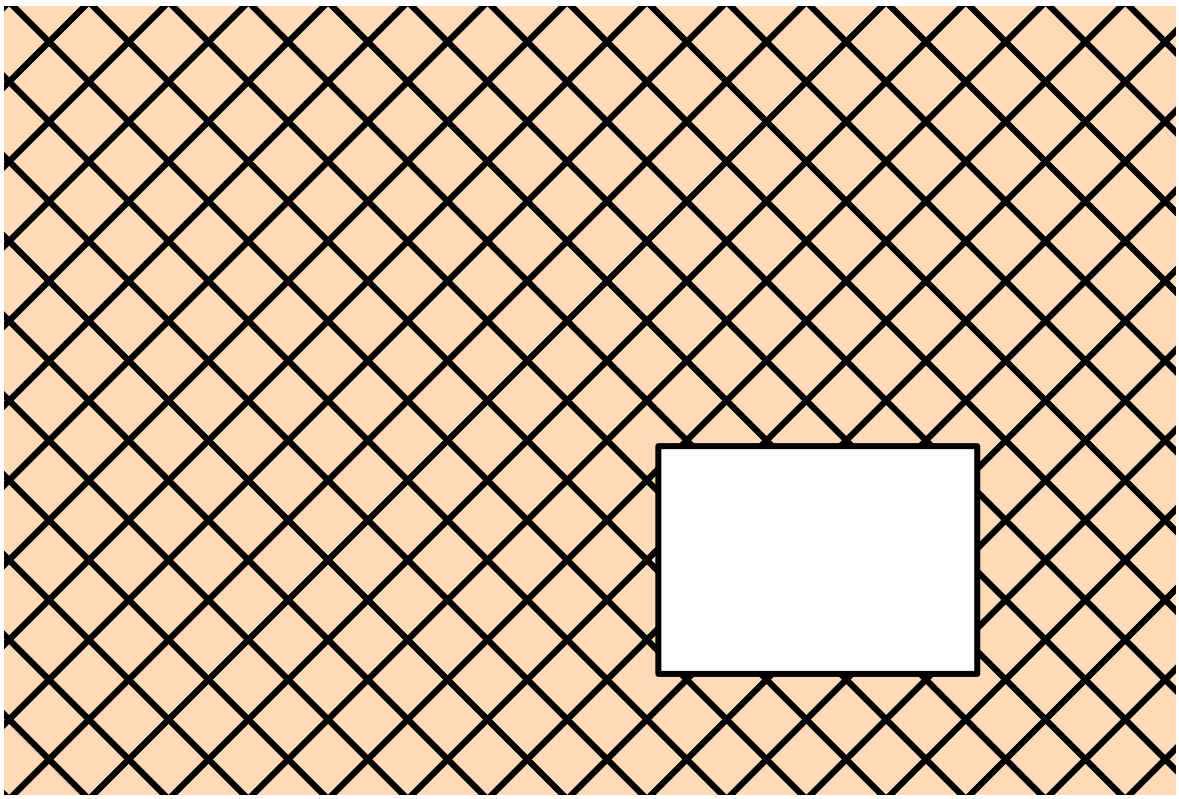


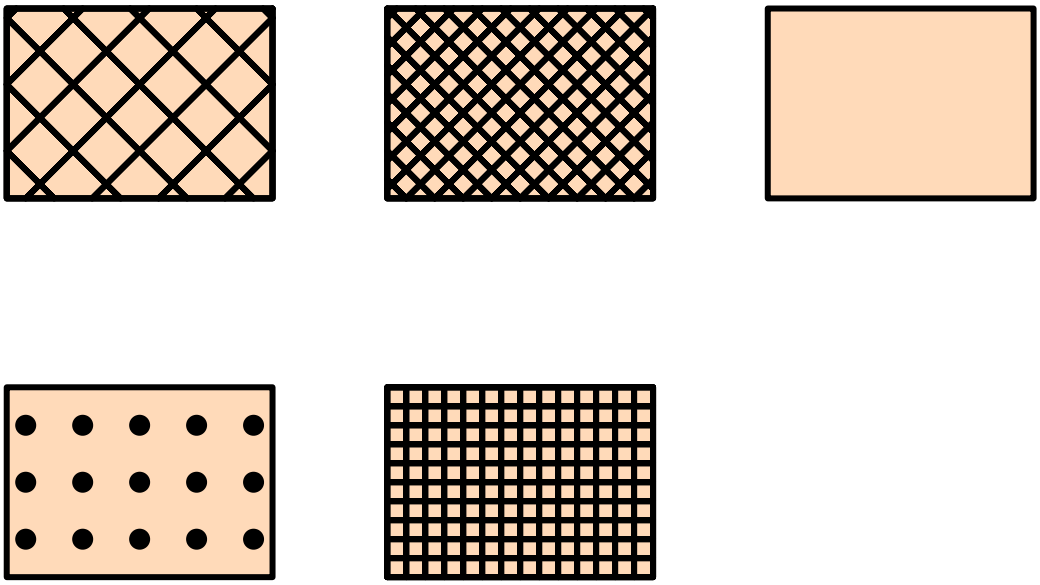
Si può variare la distanza



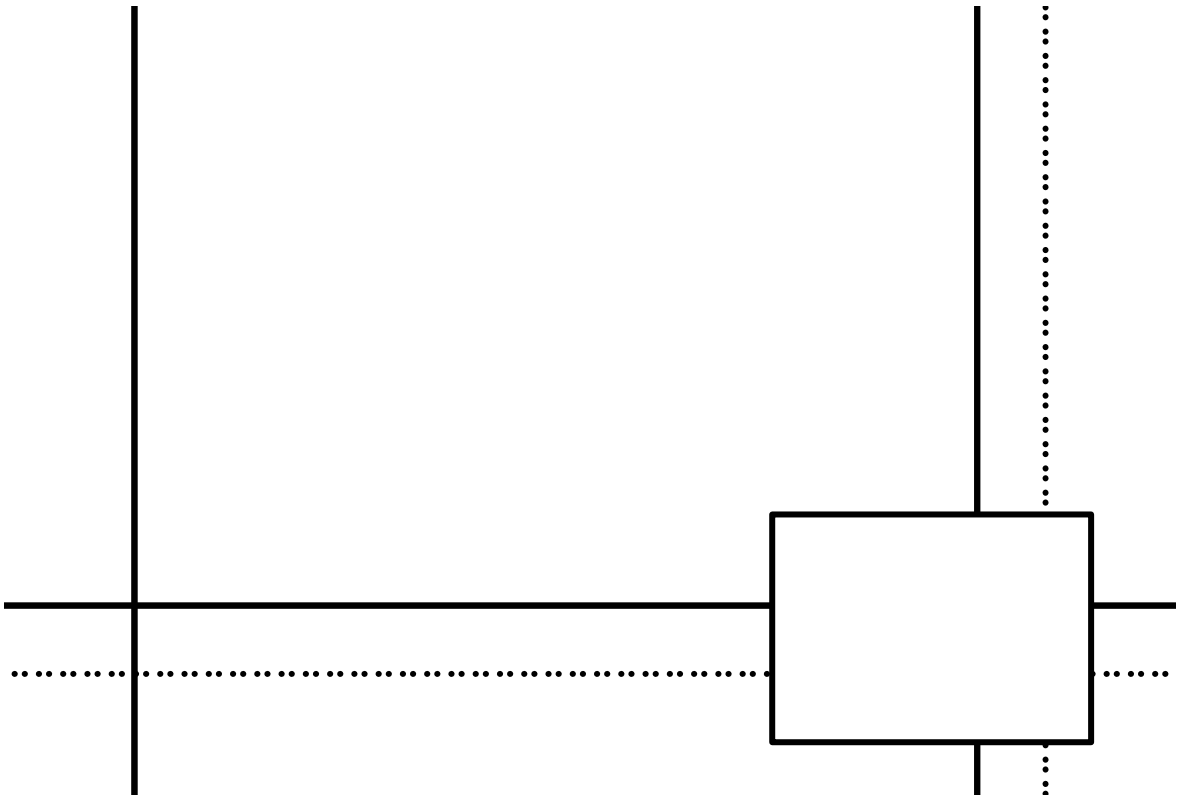


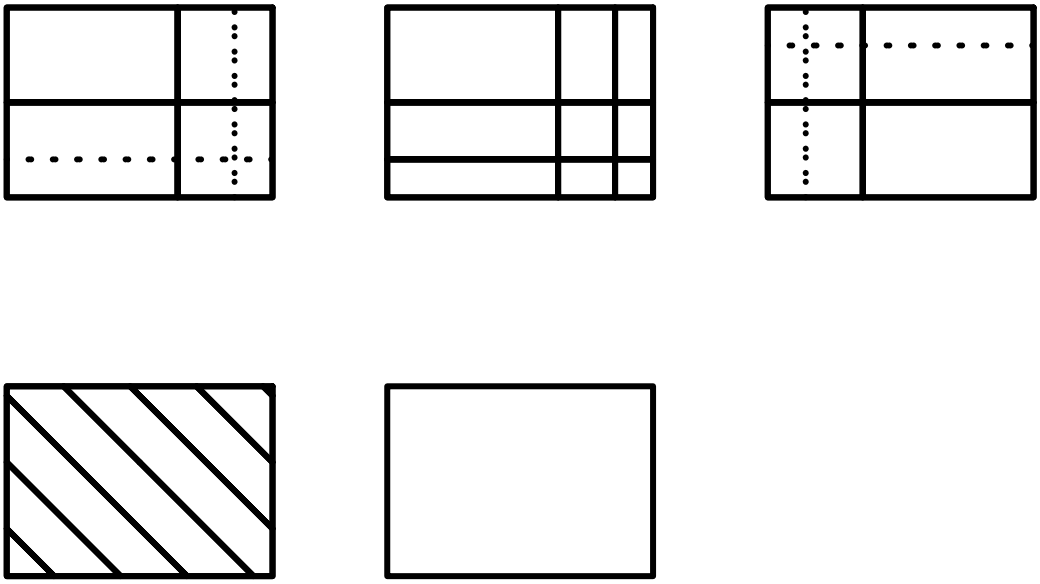
Insieme diagonali color



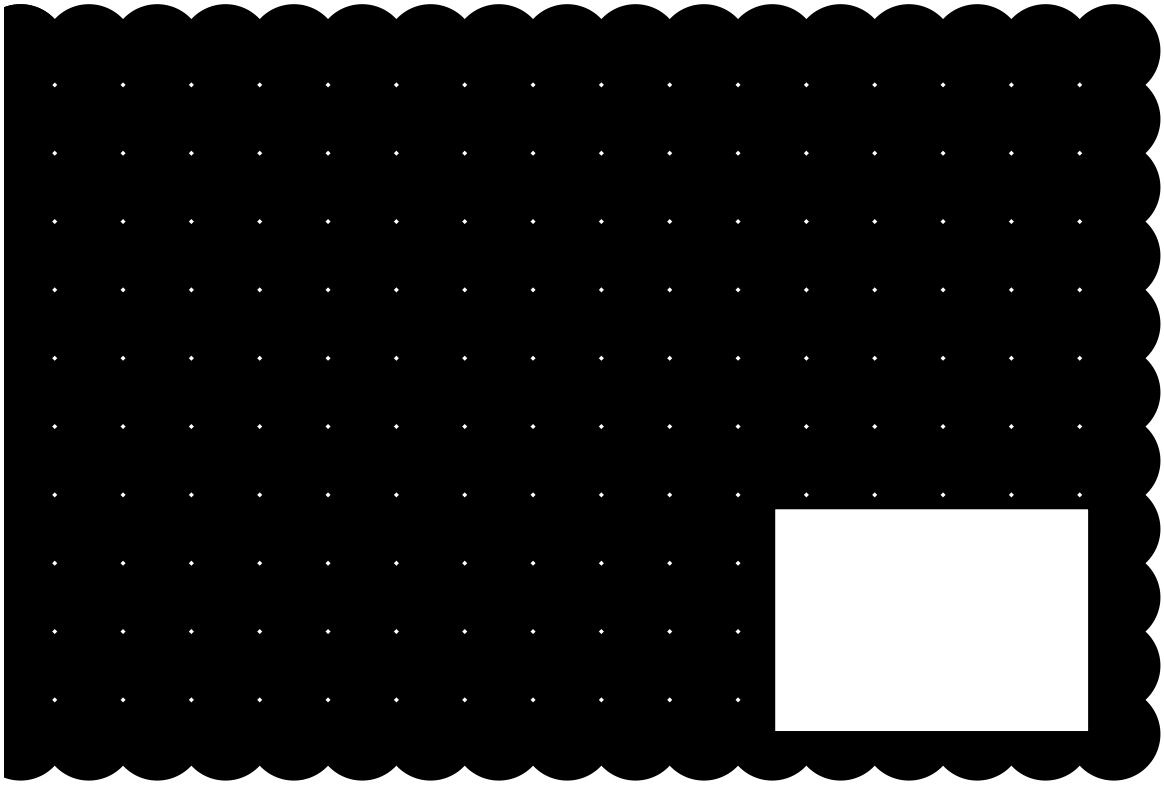


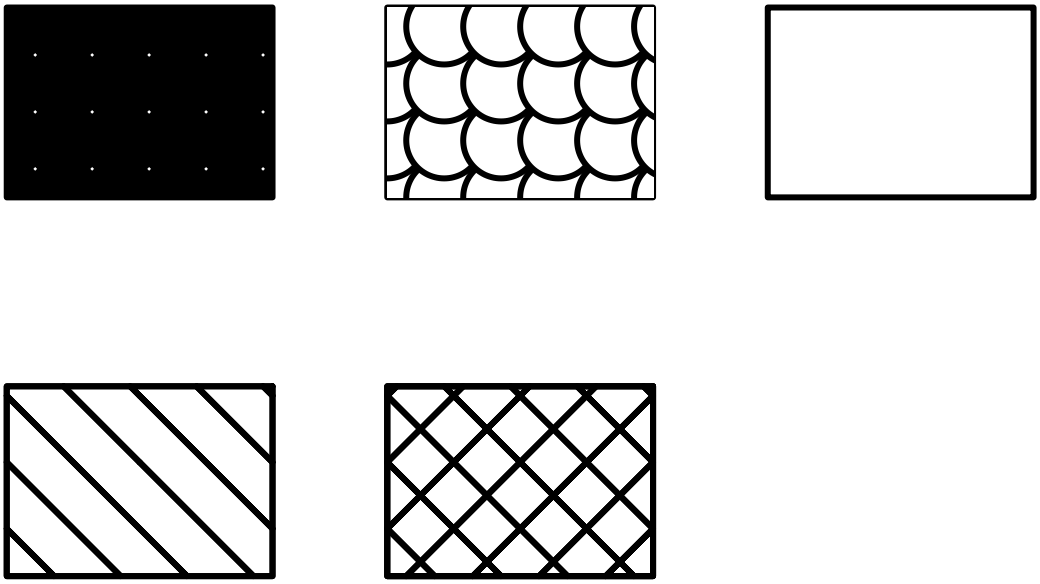
Più complesse

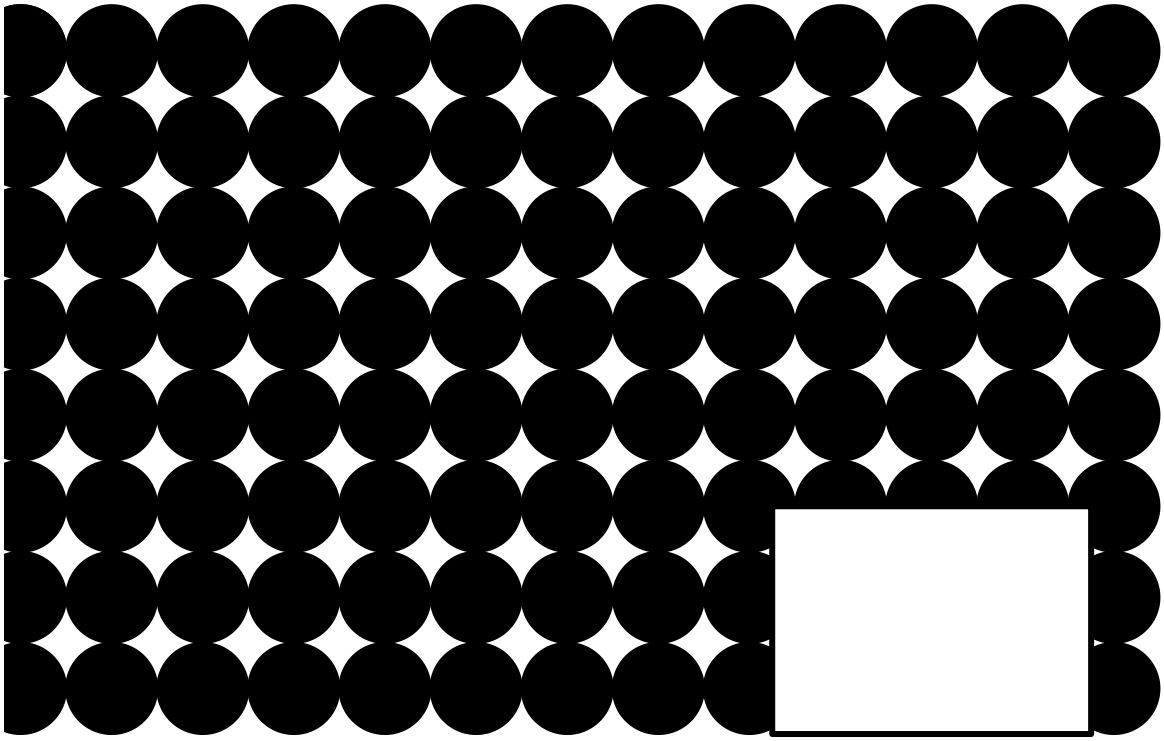


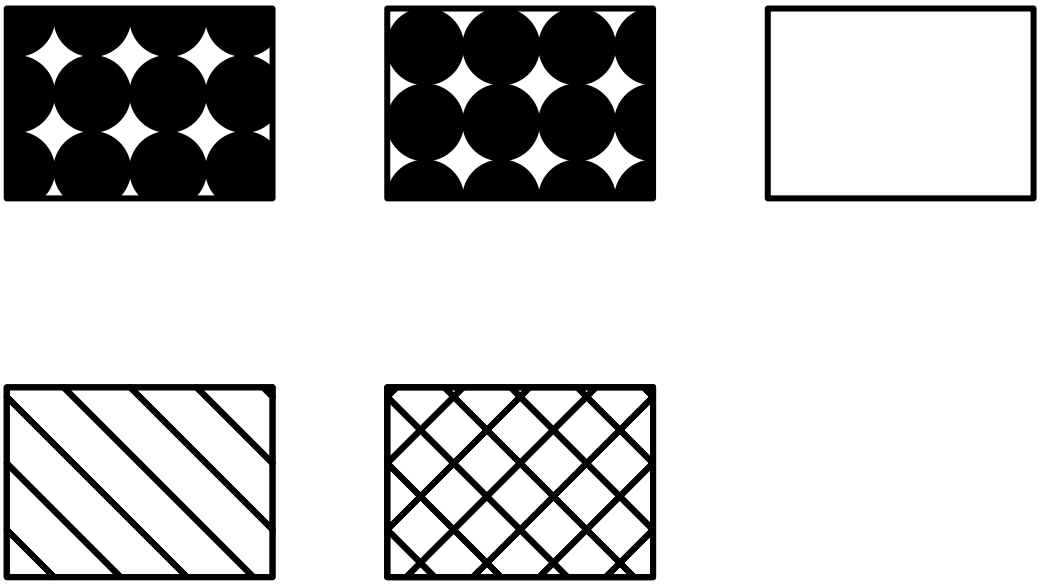


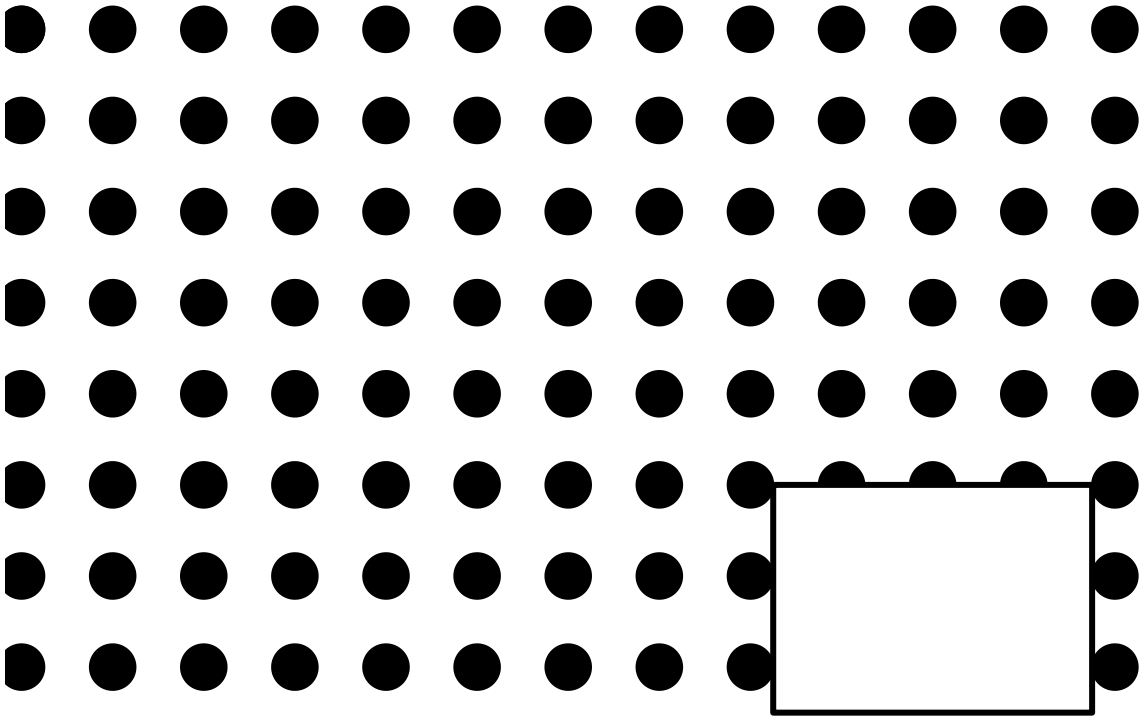
Con altre forme

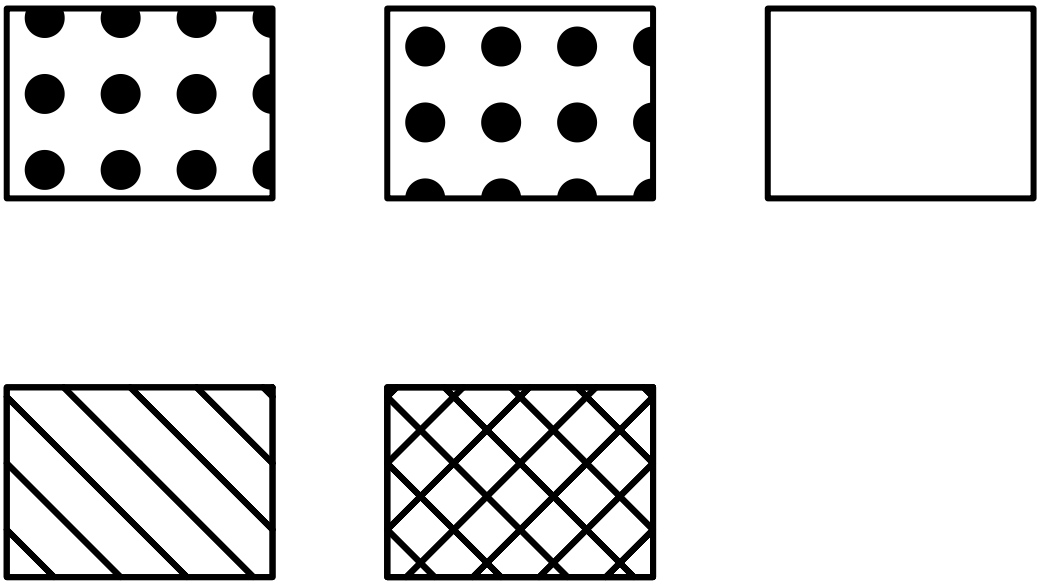


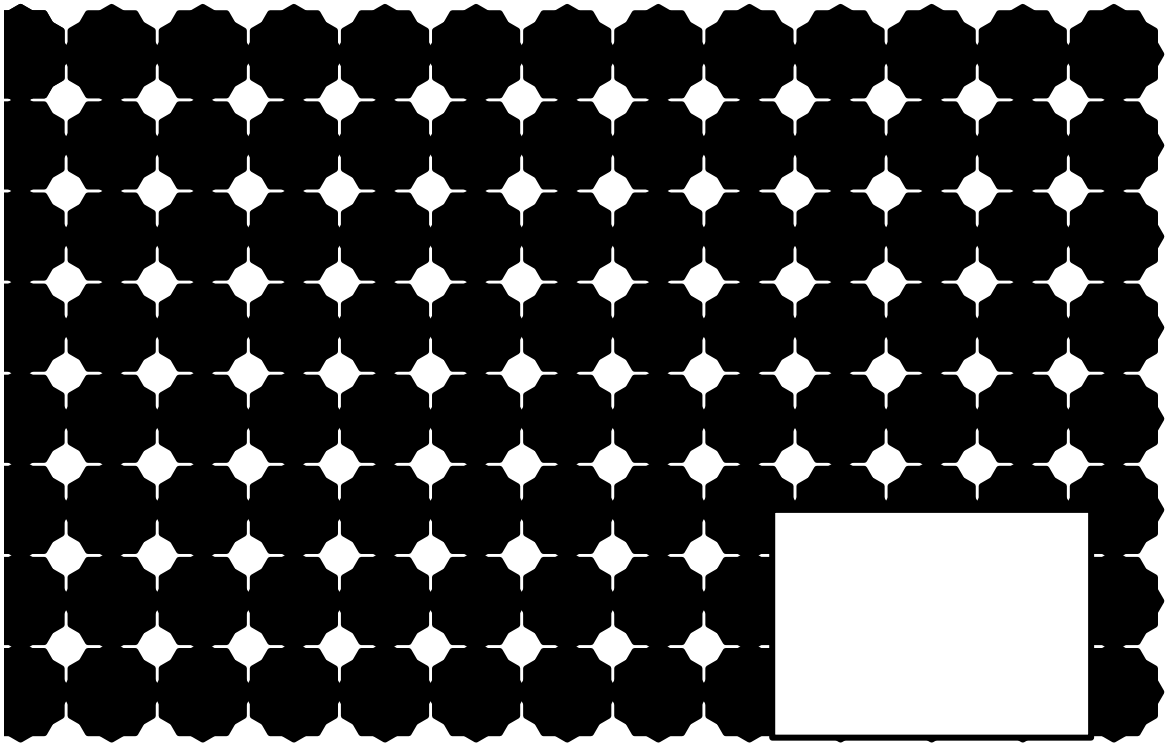


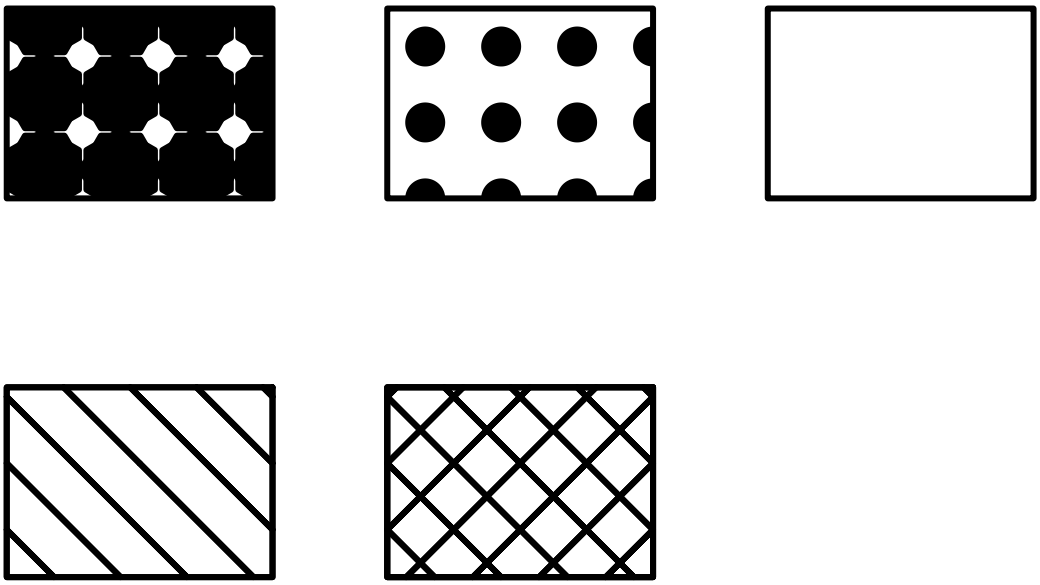


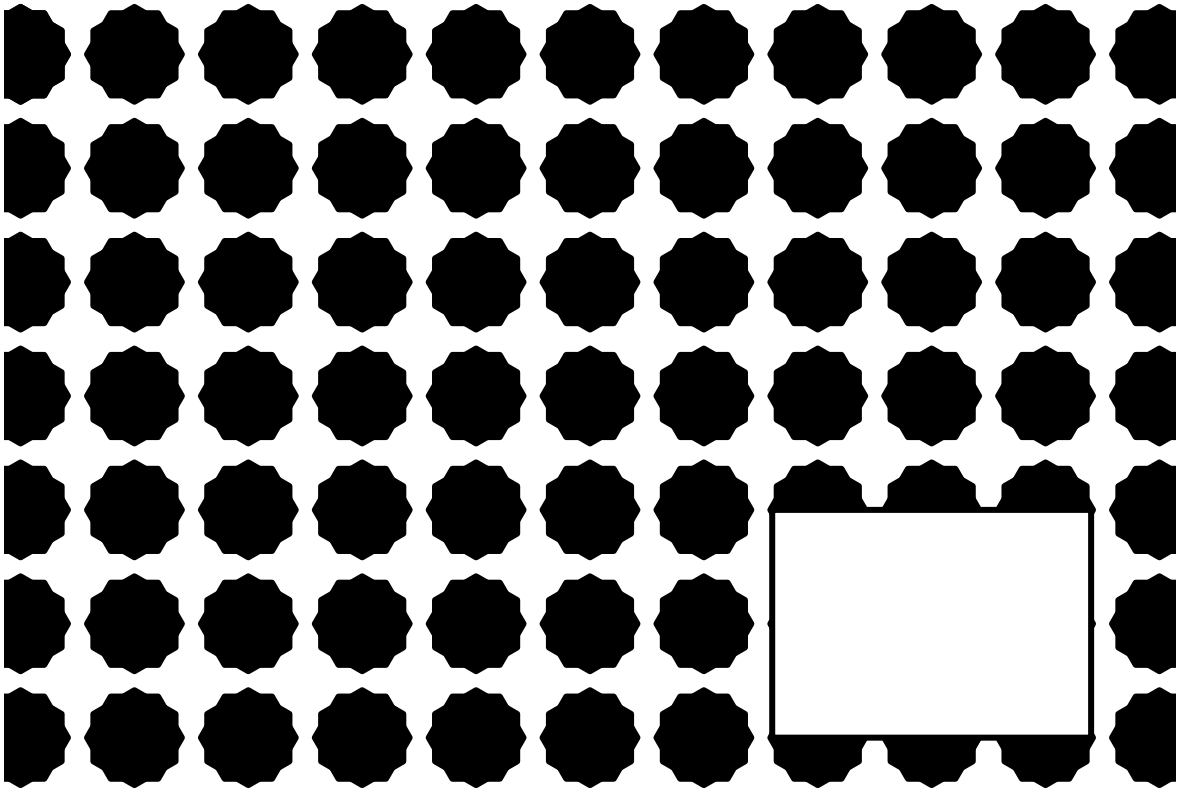


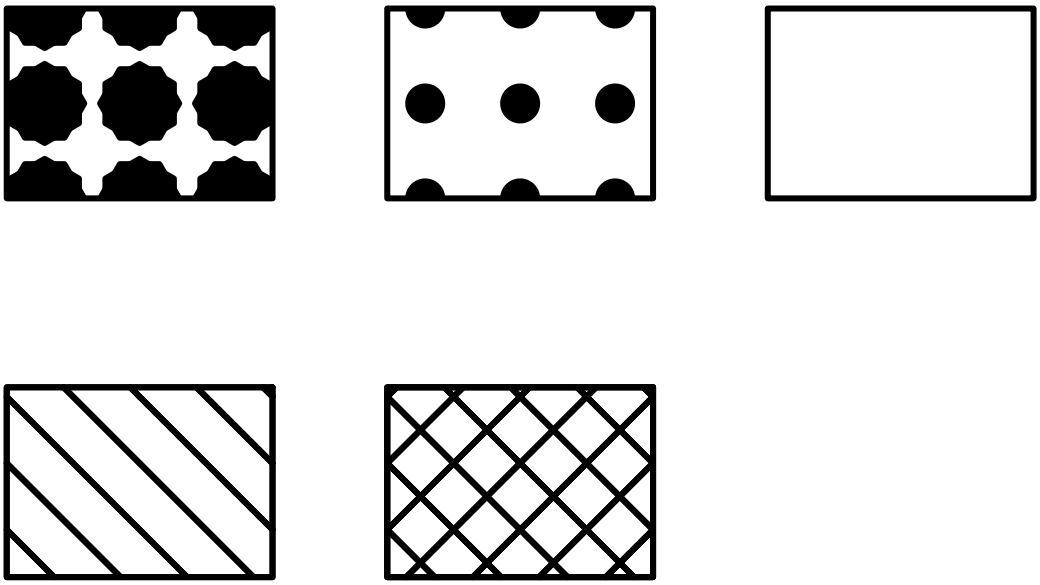








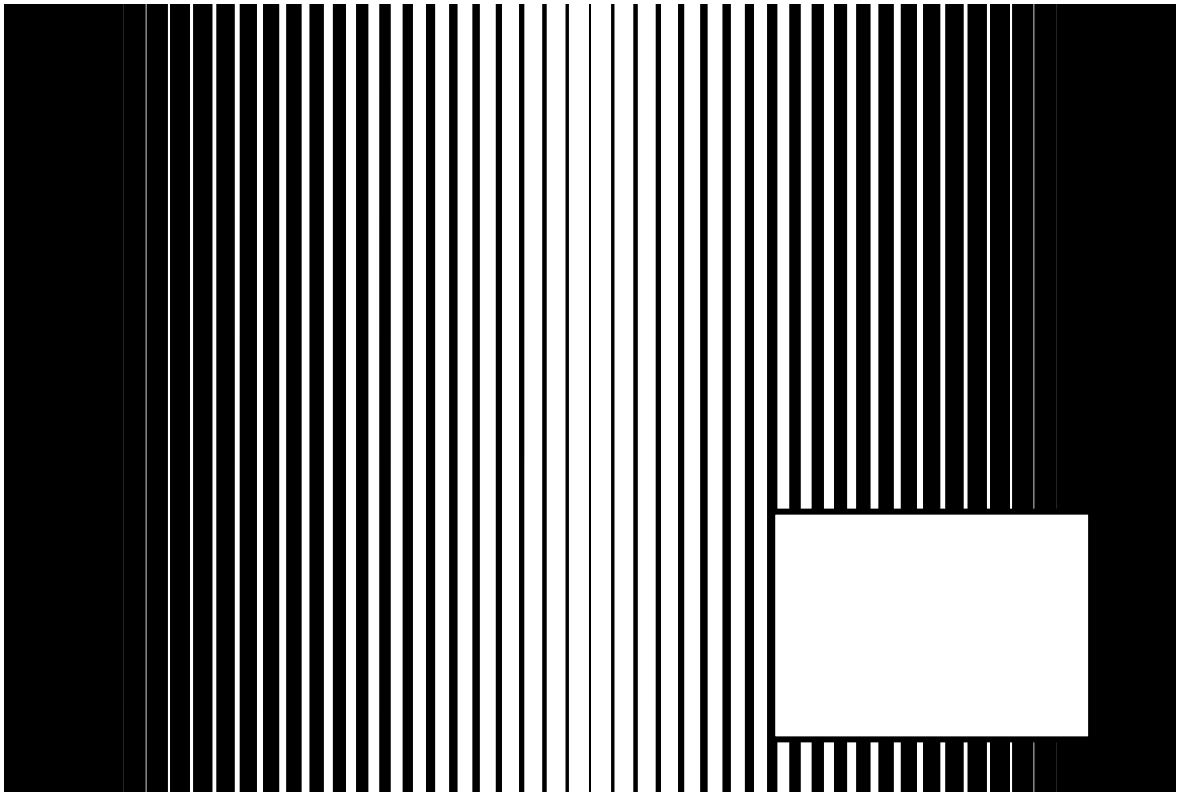


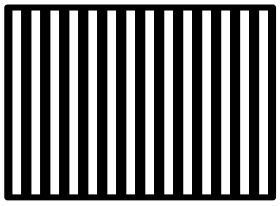
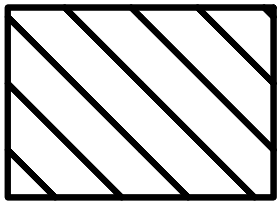
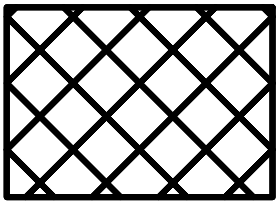


:::

Righe “complesse” verticali

Vertical Inner



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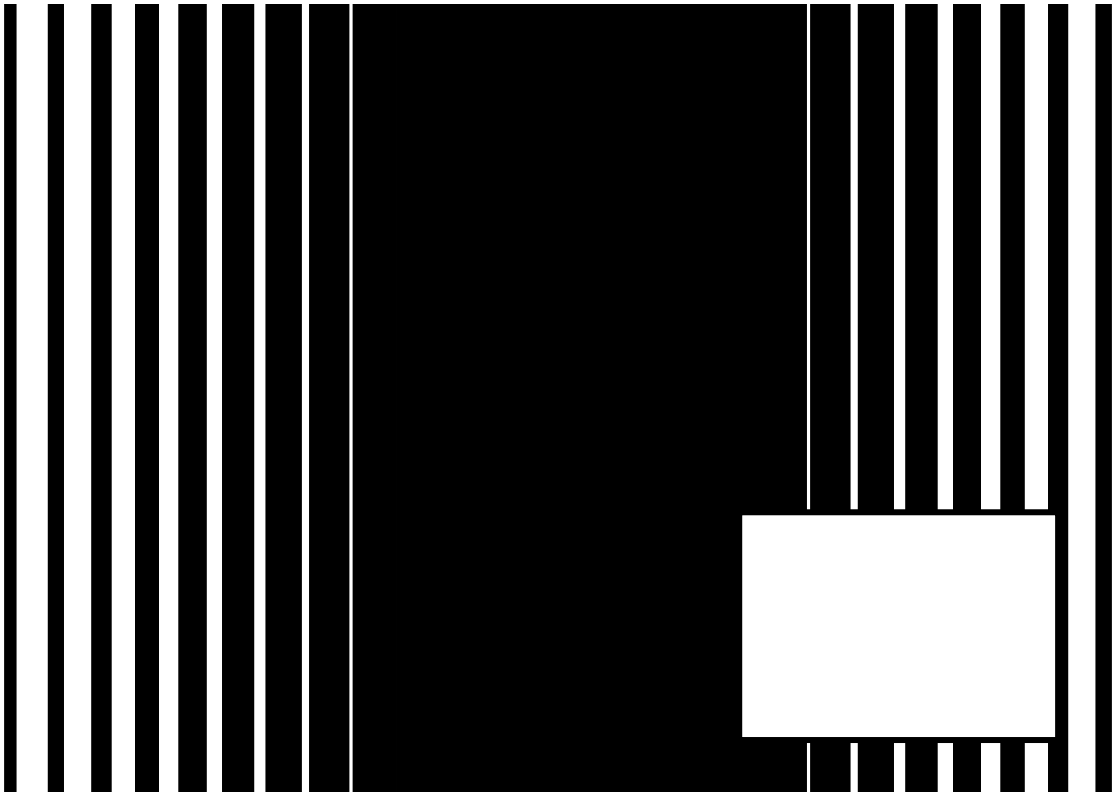
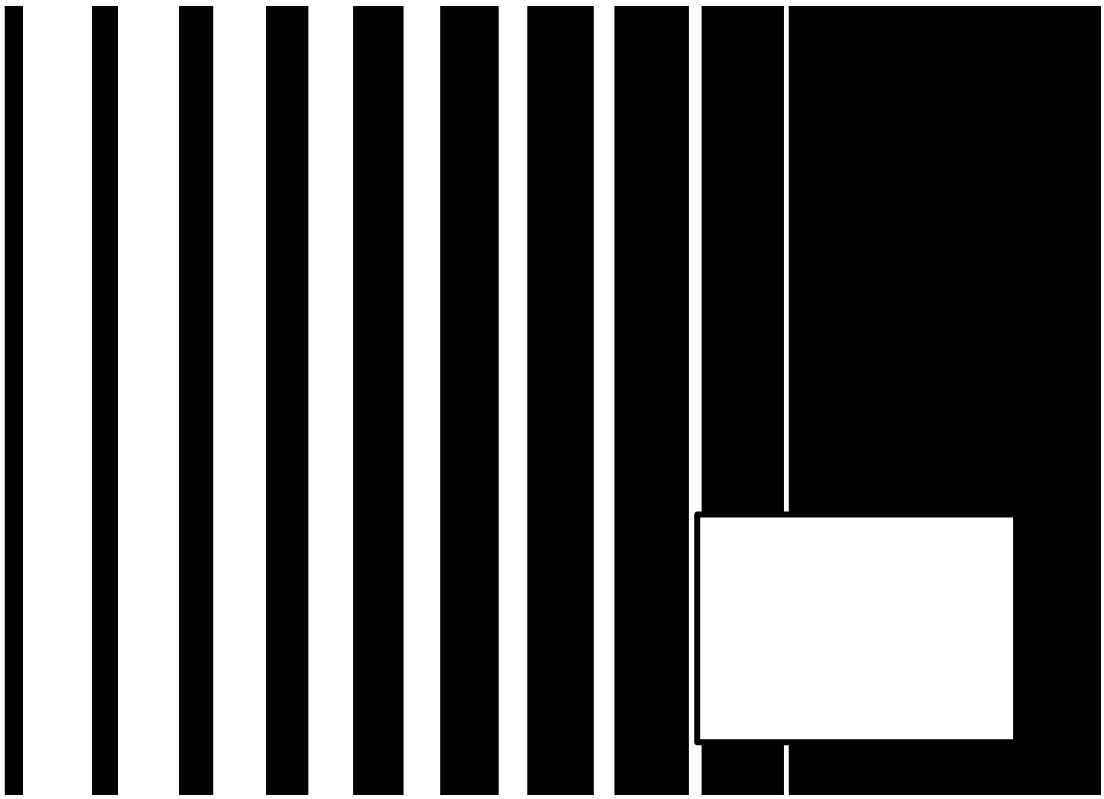
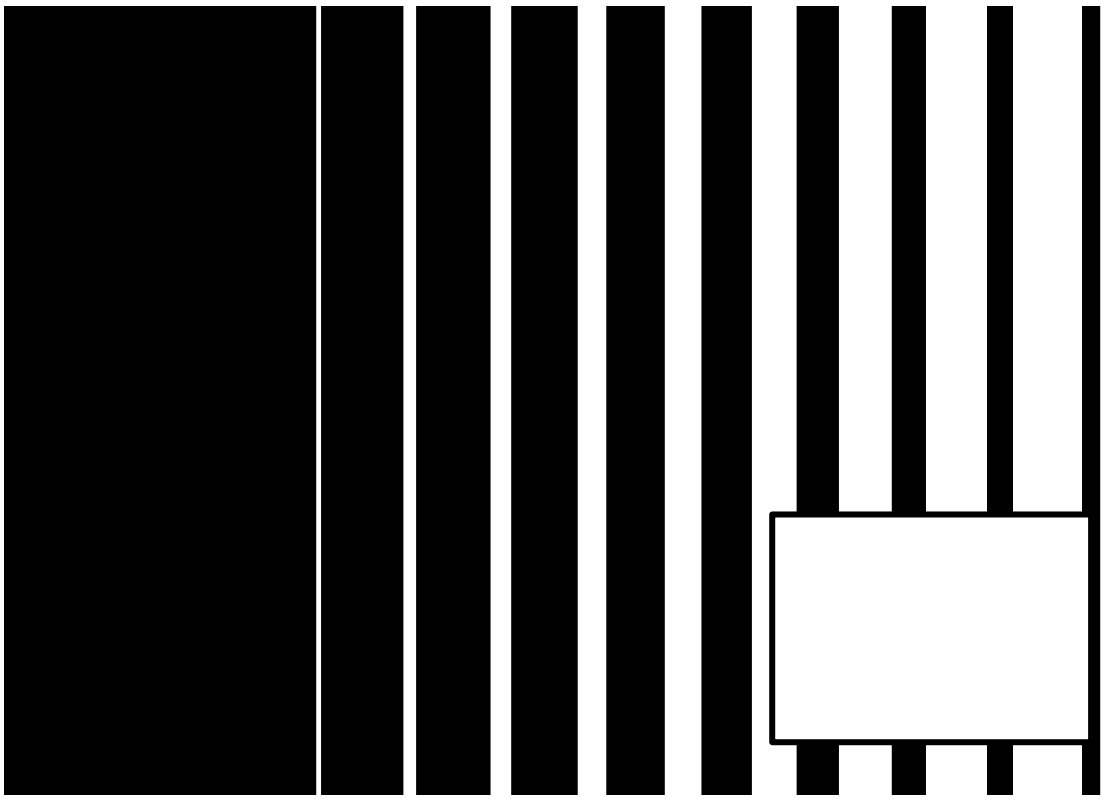


Vertical increasing

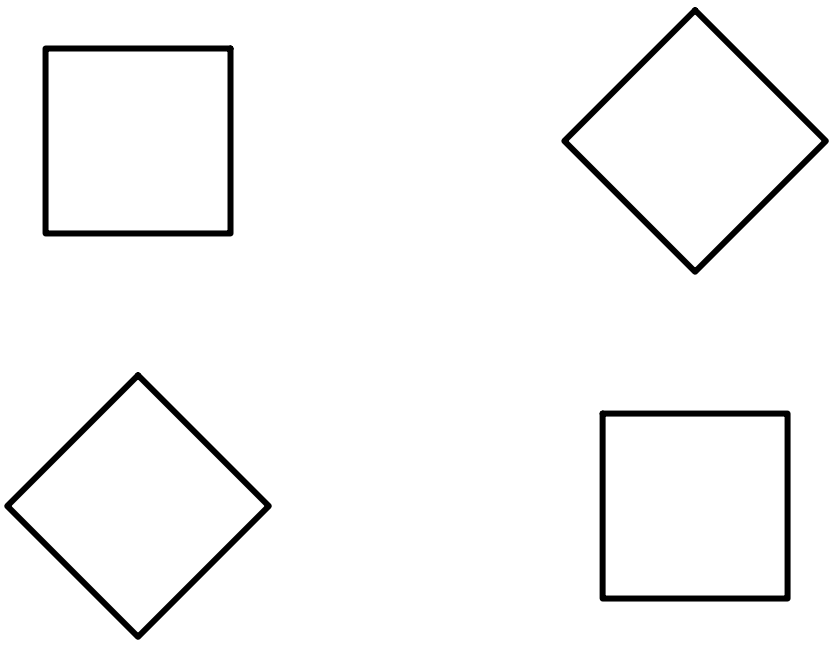


Vertical decreasing



Matrici 2×2

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"
##         }
```

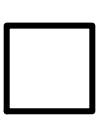
```
##         ic.temp = split.m[[which.element]]
##         for (i in 1:length(which(names(split.m) != which.element))) {
##             ic.temp = cof(split.m[[which(names(split.m) != which.element)[i]]],
##                 ic.temp)
##         }
##         ic.col = ic.temp
##     }
## }
## debug: if (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"
##     }
```

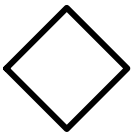
```
## } else {
##     if (is.null(which.element) == T & length(split.m) != 1) {
##         new_index = sample(index_elements, 1)
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         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)
```

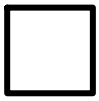
correct



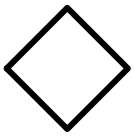
r.top



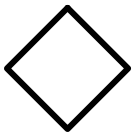
r.diag



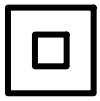
r.left



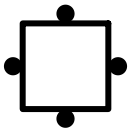
wp.copy



wp.matrix

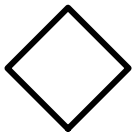


d.union

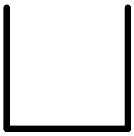


ic.scale

ic.flip

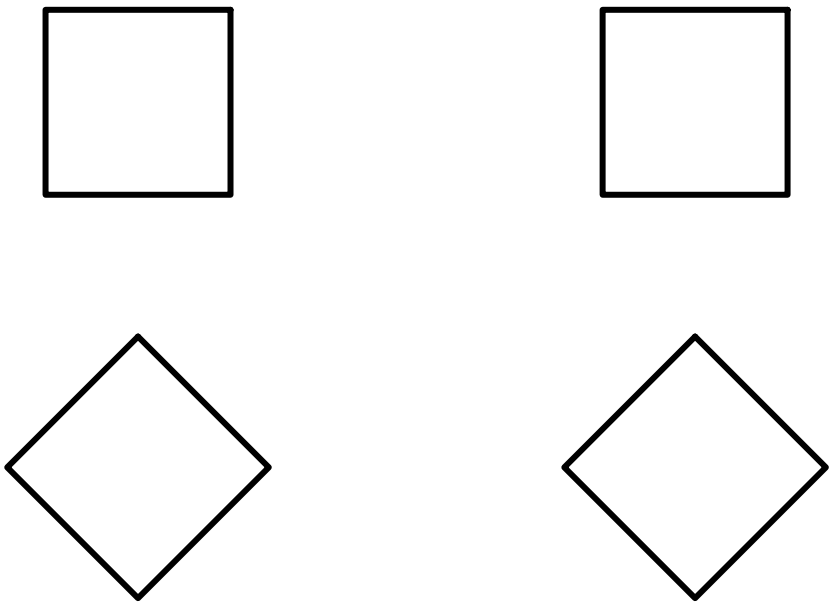


ic.inc



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)))))
##     }
```

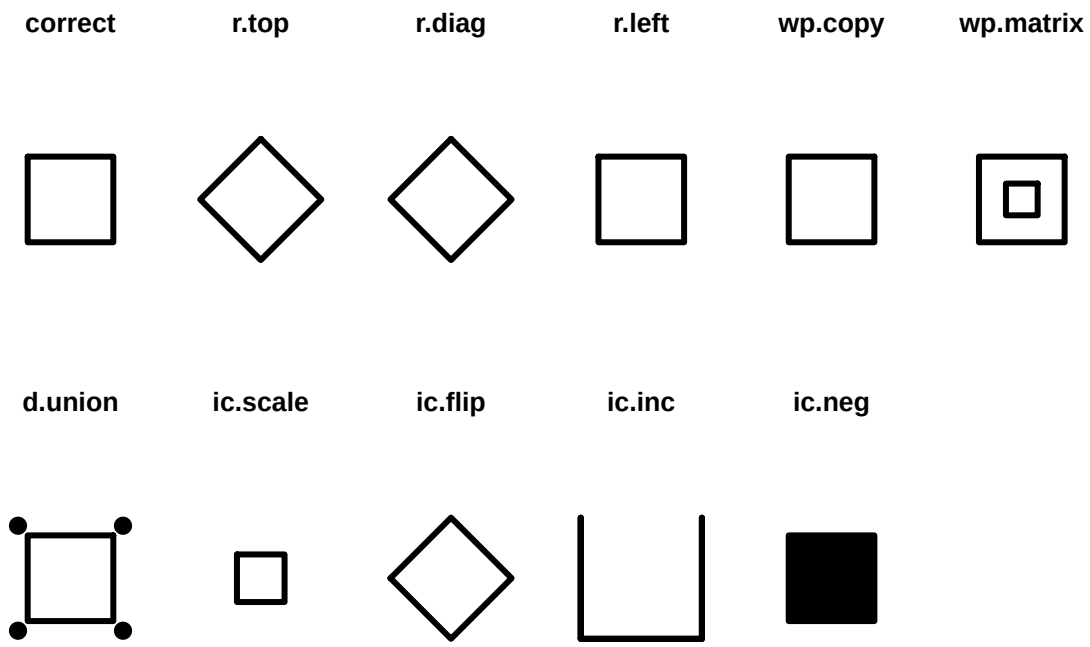
```
##     else if (any(grep("line", unlist(m5$Sq9$shade)) == T) ==
##         T) {
##         m.c$shade[[1]] = rep("white", length(is.na(any(unlist(m.c$shade)))))
##     }
##     ic.col = m.c
## } else if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$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)
```

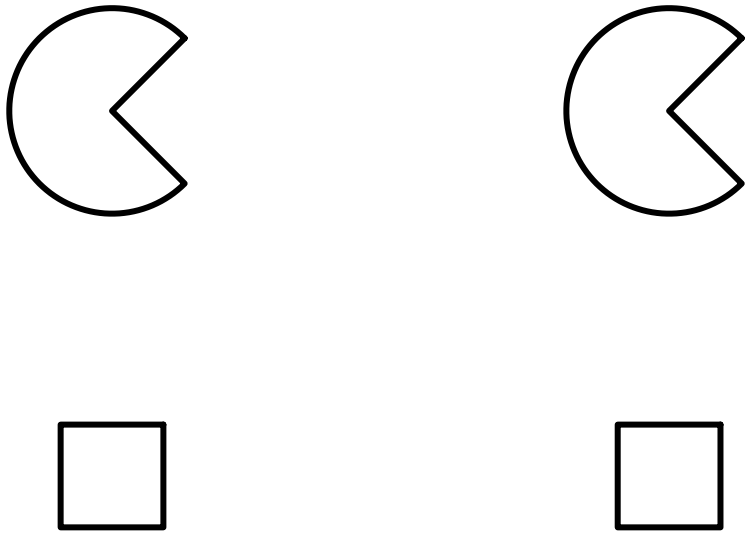
```
##         ic.temp = hide(m.correct, new_index)
##         if (is.na(split.m[[new_index]]$shade[[1]][1]) == T) {
##             split.m[[new_index]]$shade[[1]] = "black"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "white") {
##             split.m[[new_index]]$shade[[1]] = "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)
```



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

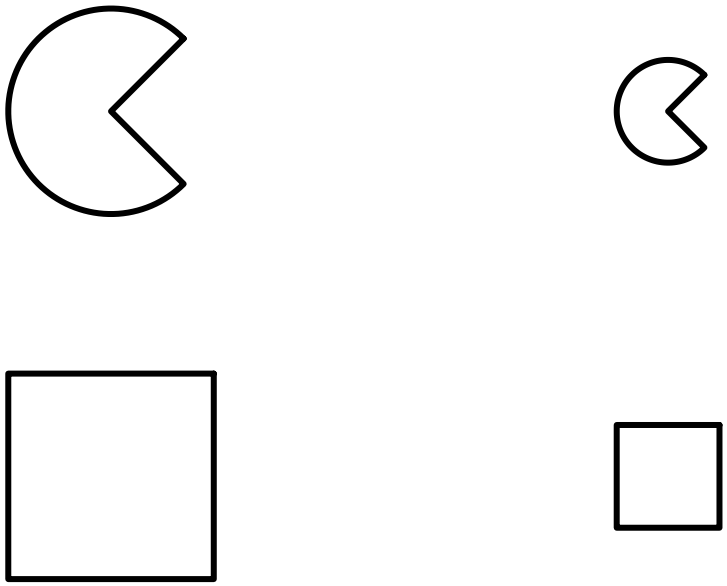
ic.scale

ic.flip

ic.inc

ic.neg

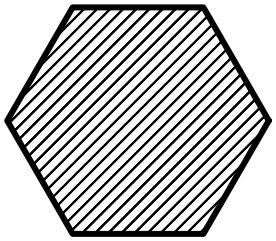
Verticale e Orizzontale

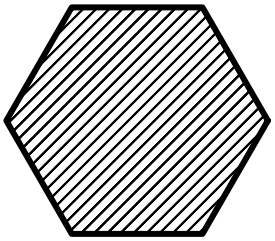


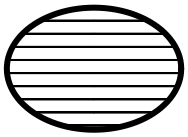
:::

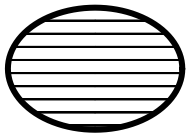
Forma e riempimento

Verticale

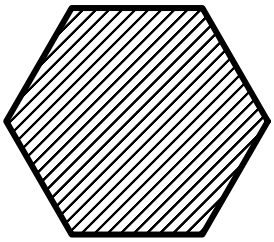


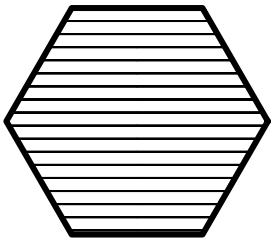


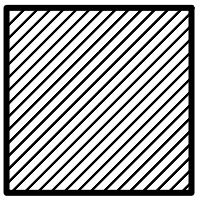


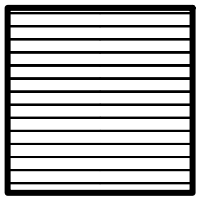


Verticale e orizzontale









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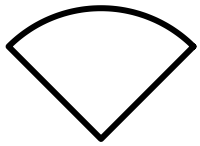
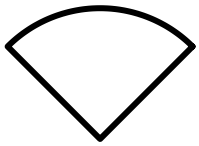
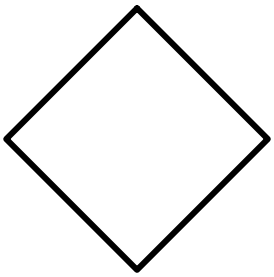
Forma e orientamento

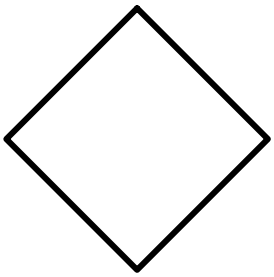
Forma e orientamento

Verticale

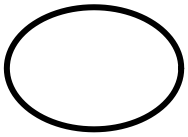


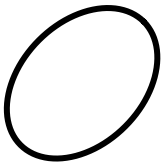


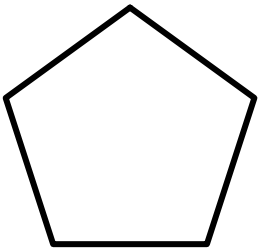


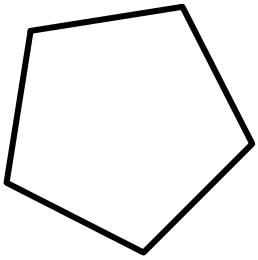


Verticale e orizzontale



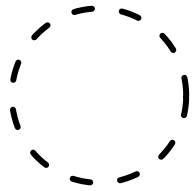


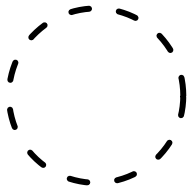


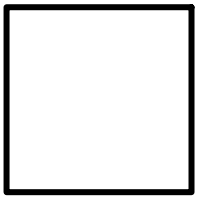


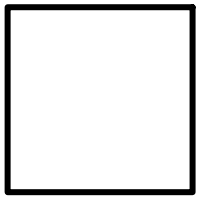
Forma e bordo

Verticale

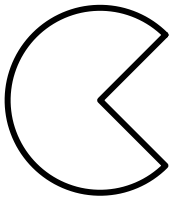


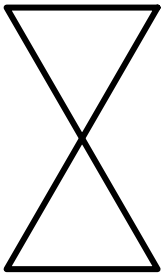






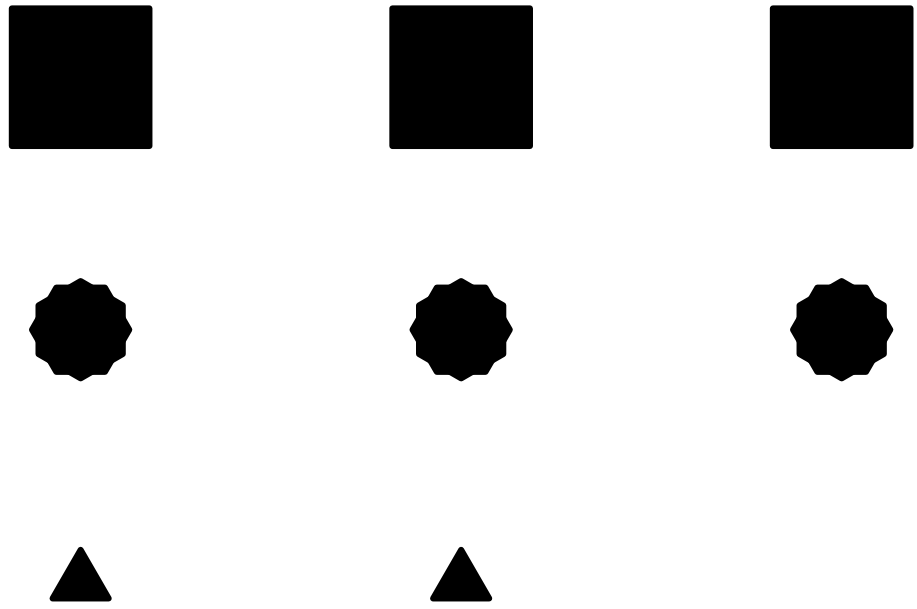
Verticale e orizzontale





Matrici 3×3

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

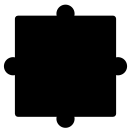
r.diag

r.left

wp.copy

wp.matrix

d.union



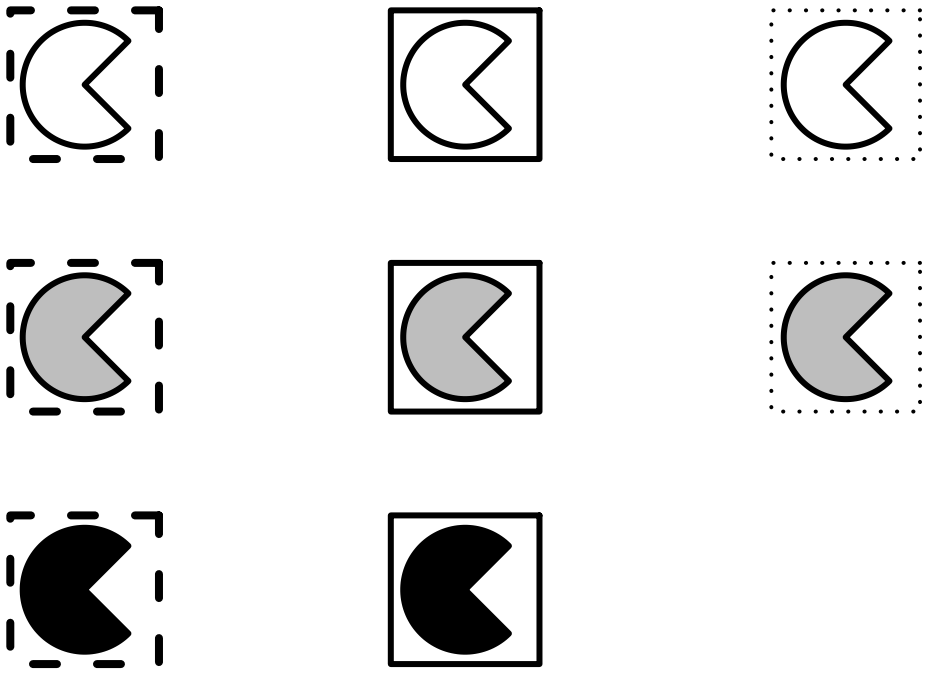
ic.scale

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"
##         }
```

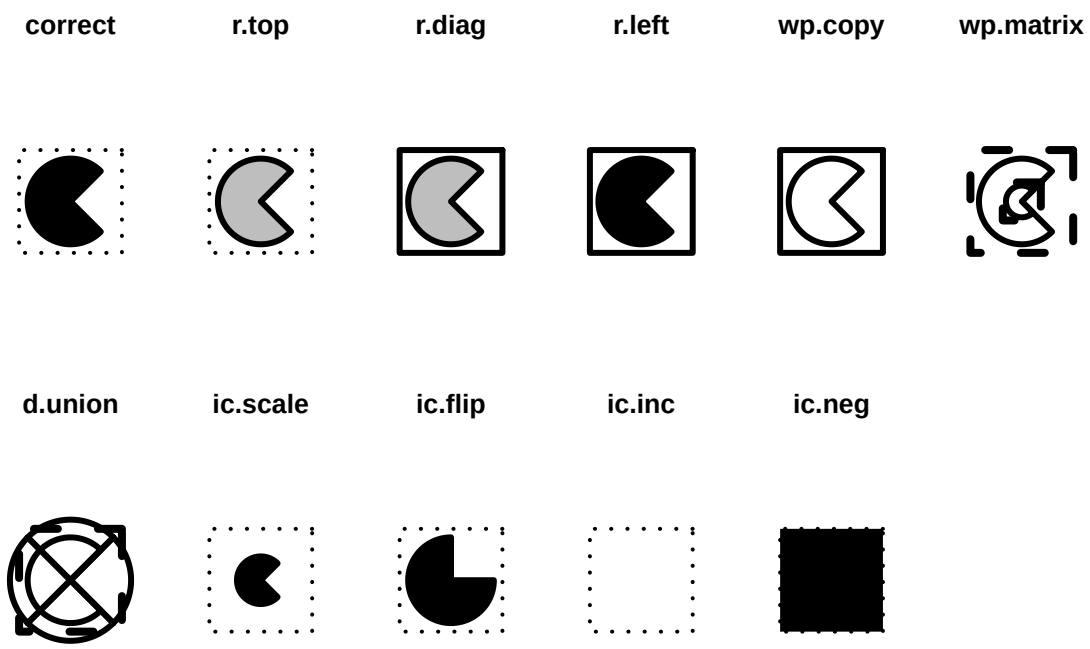
```
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$shade[[1]])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

```
##         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
##     }
```

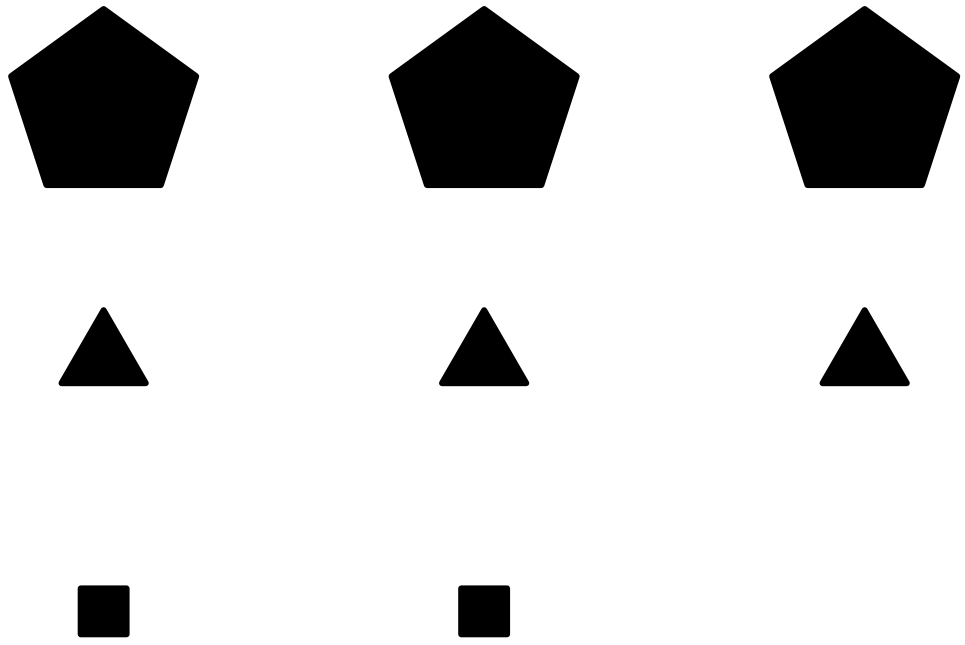
```
## }
## debug: if (length(index_elements) == 1 & length(split.m) == 1) {
##     ic.col = split.m[[1]]
##     if (is.na(ic.col$shade[[1]]) == T) {
##         ic.col$shade[[1]] = "black"
##     }
##     else if (ic.col$shade[[1]] == "white") {
##         ic.col$shade[[1]] = "black"
##     }
##     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)
```



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$Sq9$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)
```

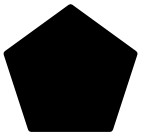
correct

r.top

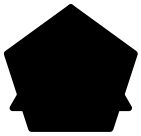
r.diag

r.left

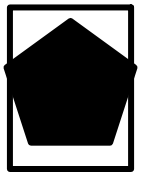
wp.copy



wp.matrix



d.union



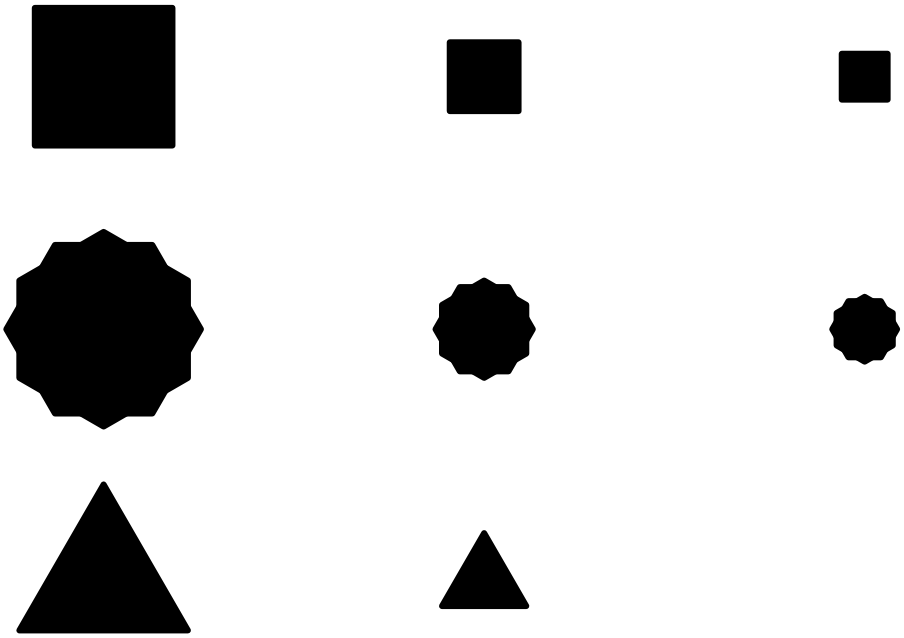
ic.scale

ic.flip

ic.inc

ic.neg

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") {
```

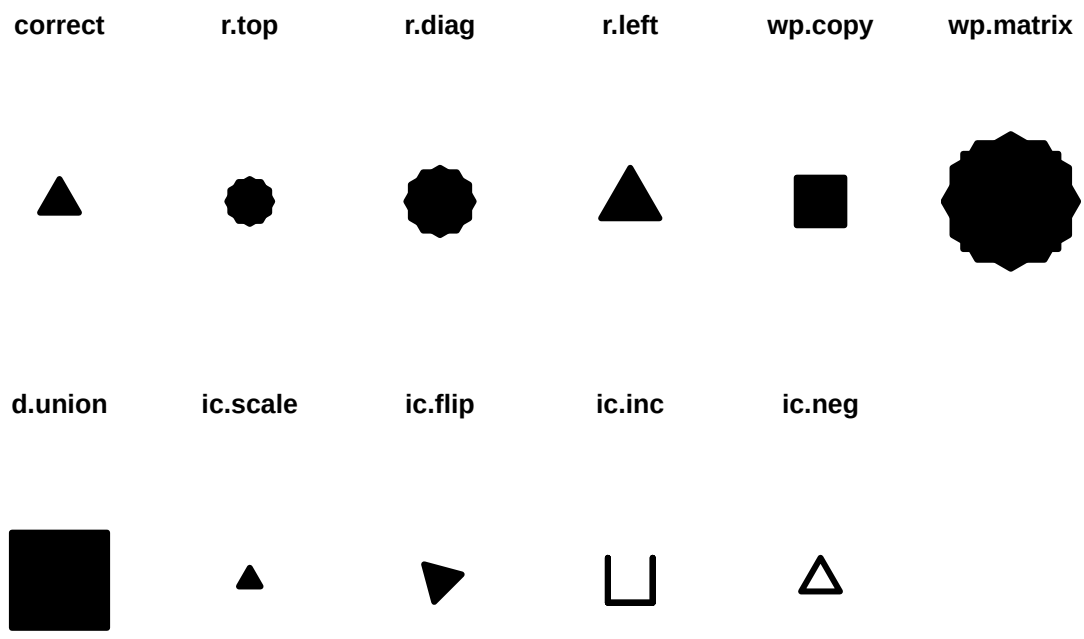
```
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         else if (split.m[[new_index]]$shade[[1]] == "grey") {
##             split.m[[new_index]]$shade[[1]] = "white"
##         }
##         ic.col = cof(ic.temp, split.m[[new_index]])
##     }
##     else if (is.null(which.element) == F & length(split.m) !=
##         1) {
##         if (is.na(split.m[[which.element]]$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)
```



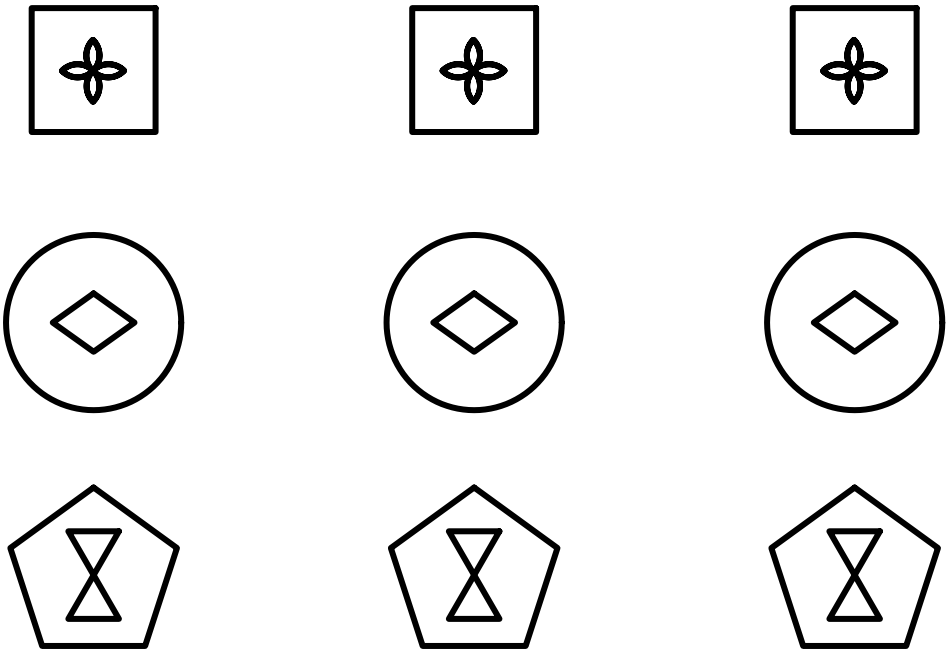
Gemella 1

(gemella 1 è elisa)

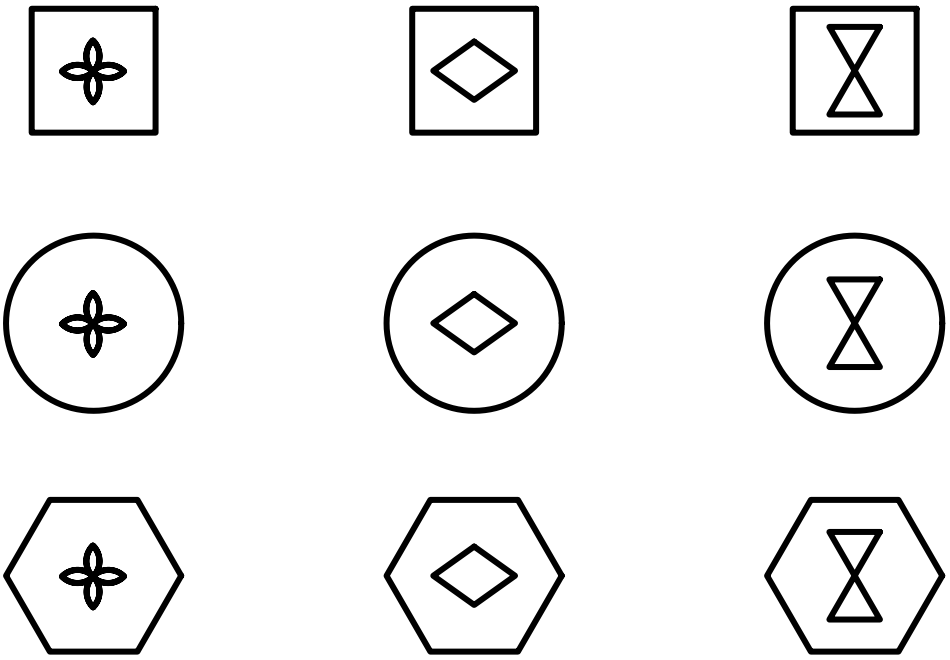
:::

Forma e rimepimento

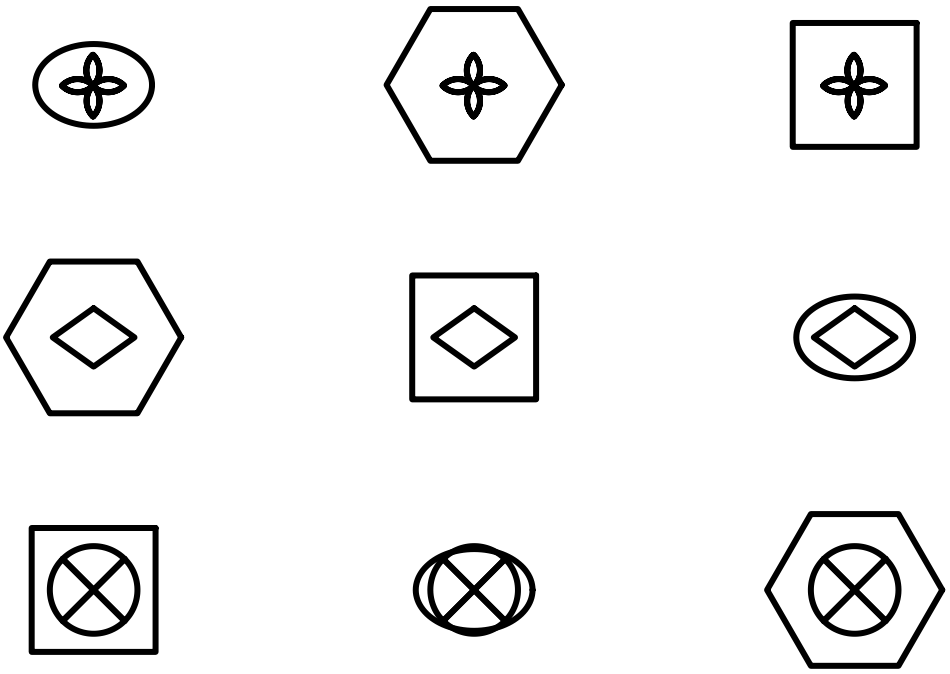
Verticale



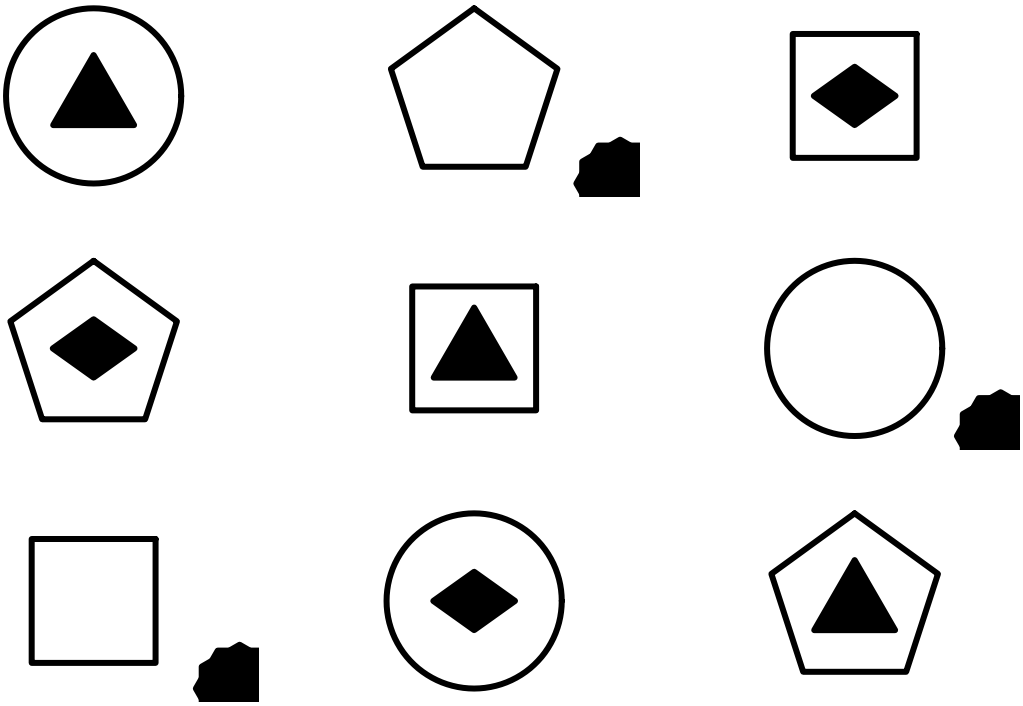
Verticale e orizzontale



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

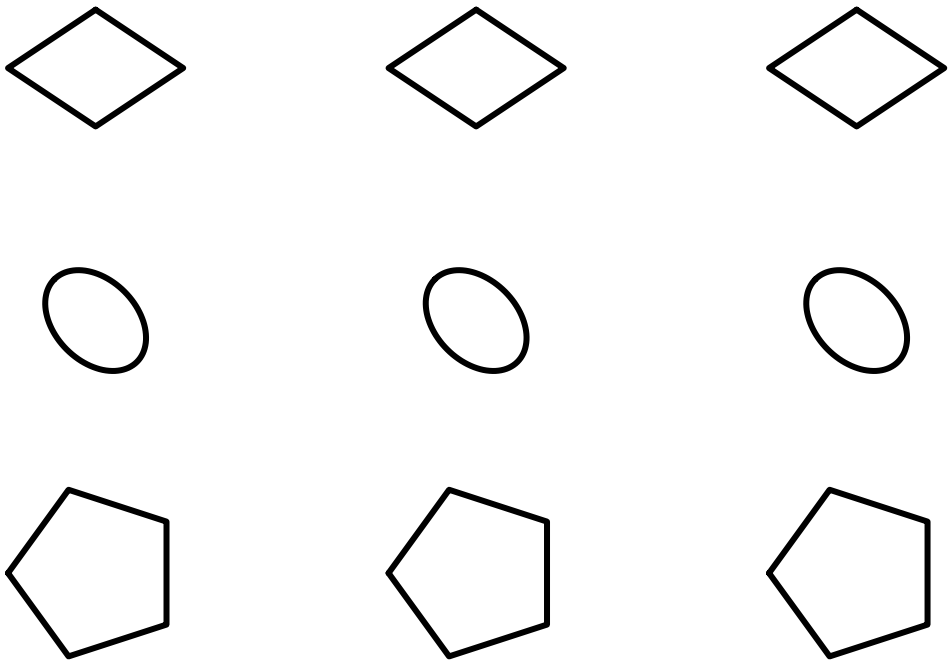


TL-LR per la prima, TR-LL per la seconda

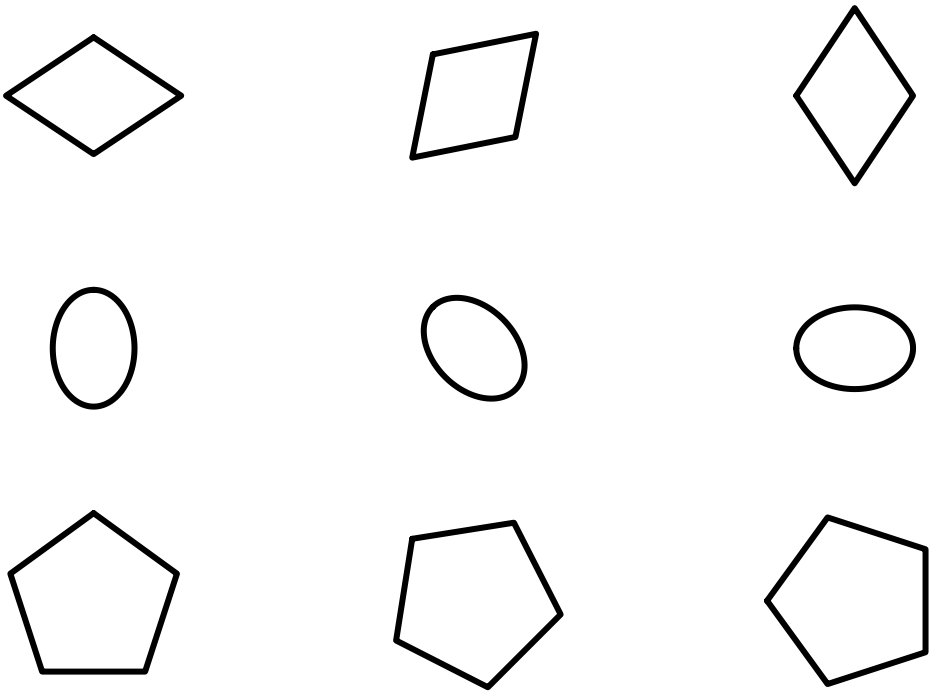


Forma e orientamento

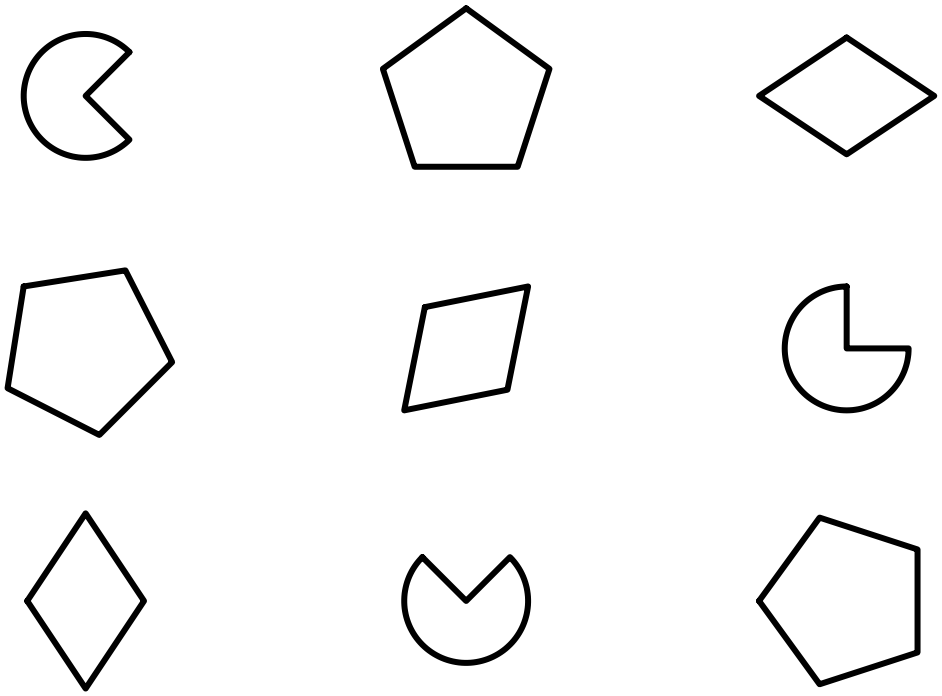
Verticale



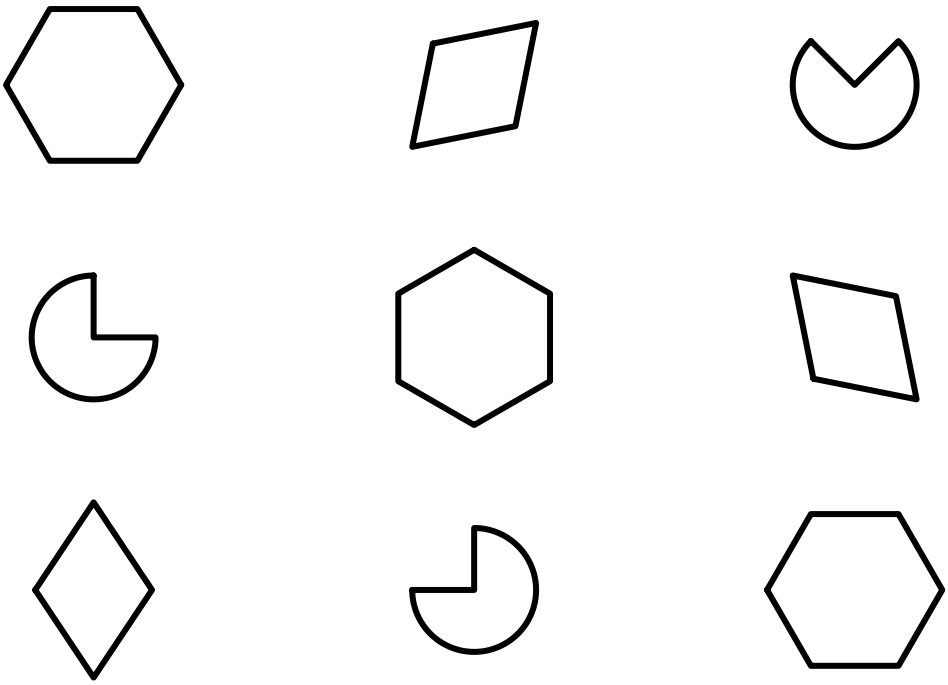
Verticale e orizzontale



TL-LR sulla prima, verticale sulla seconda

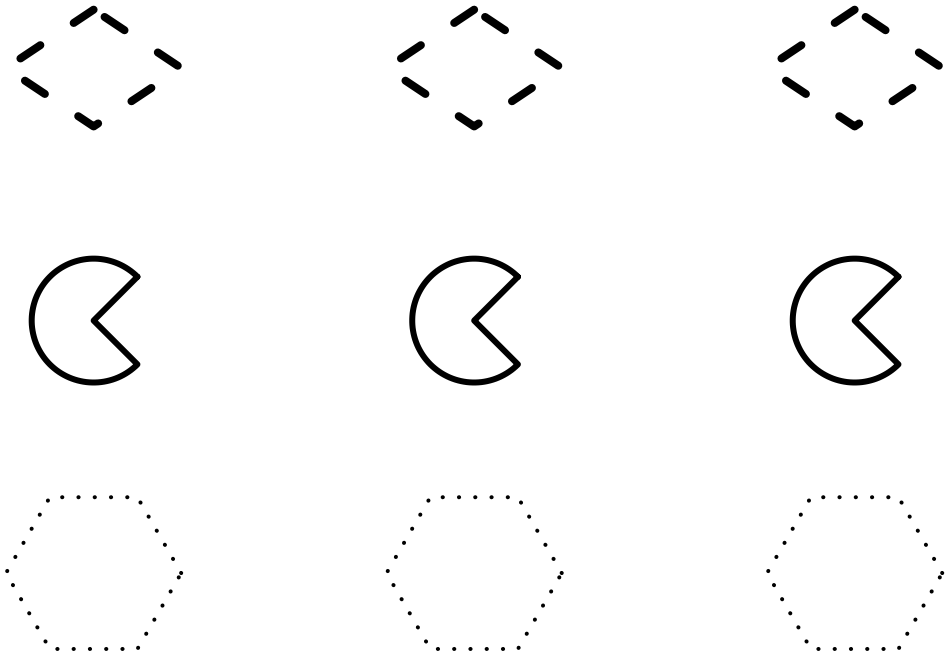


TR-LL sulla prima, TL-LR sulla seconda

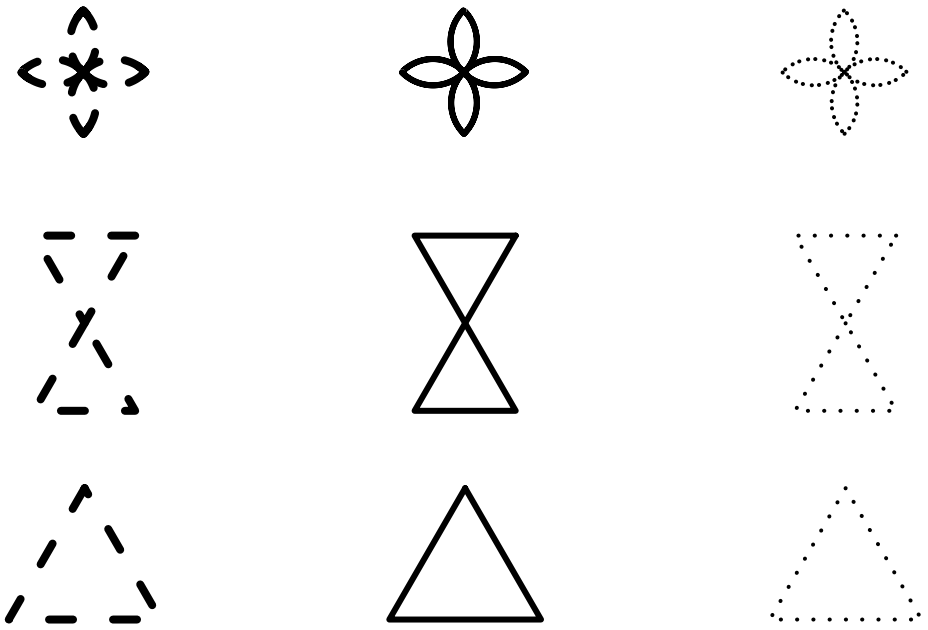


Forma e bordo

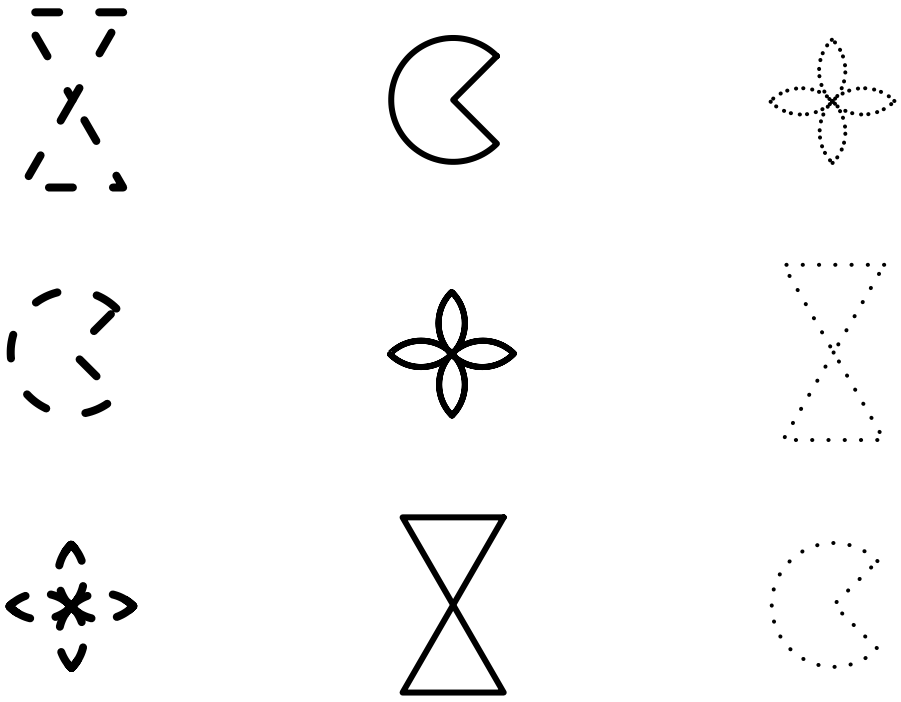
Verticale



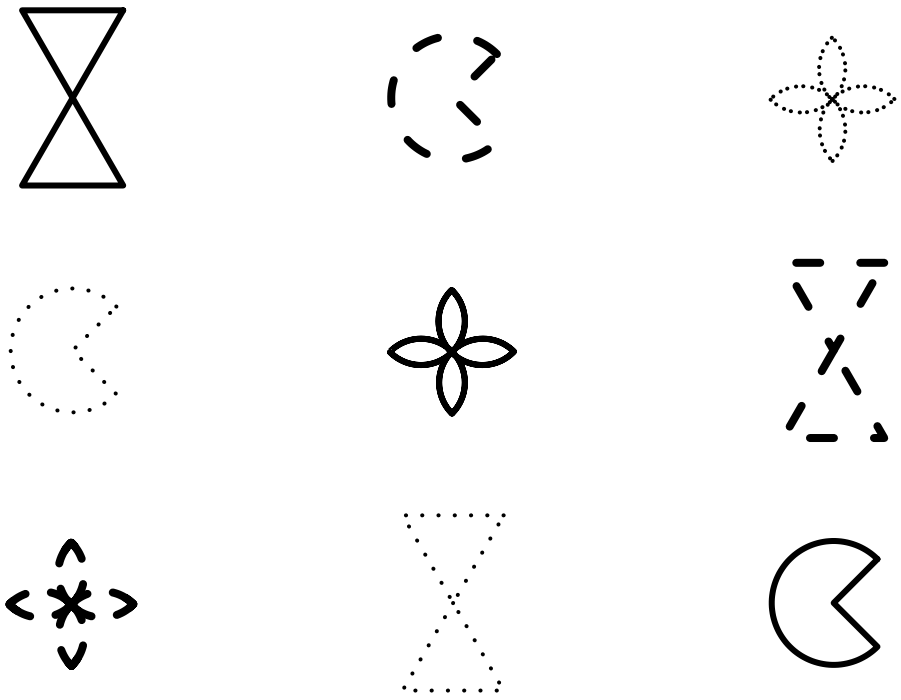
Verticale e orizzontale



TL-LR sulla prima, V sulla seconda

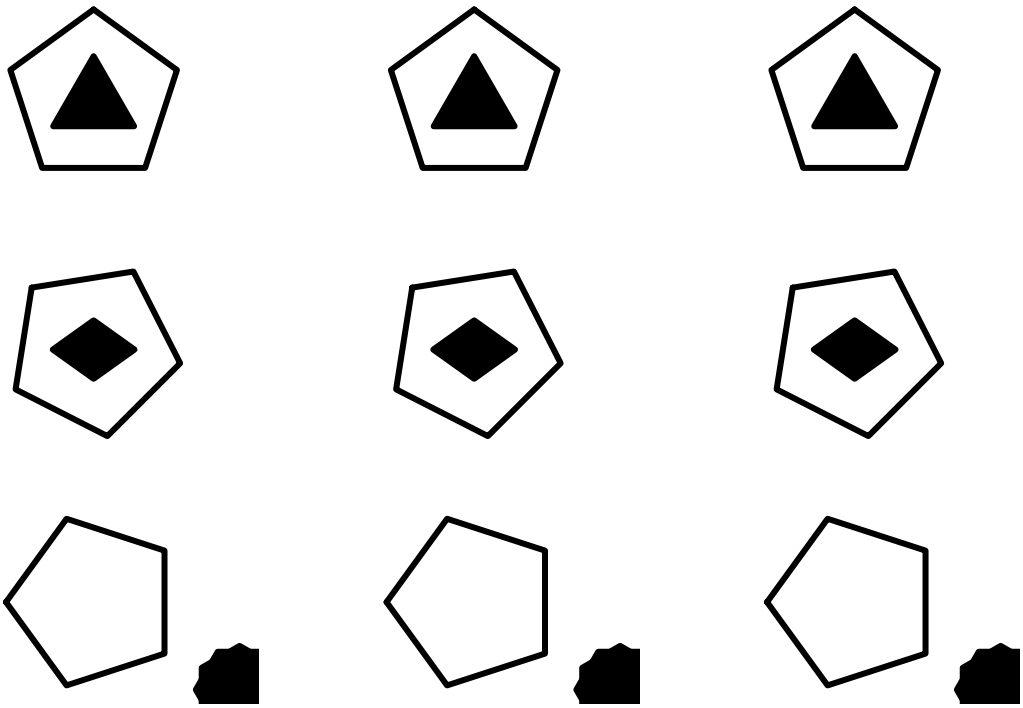


TL-LR sulla prima, TR-LL sulla seconda

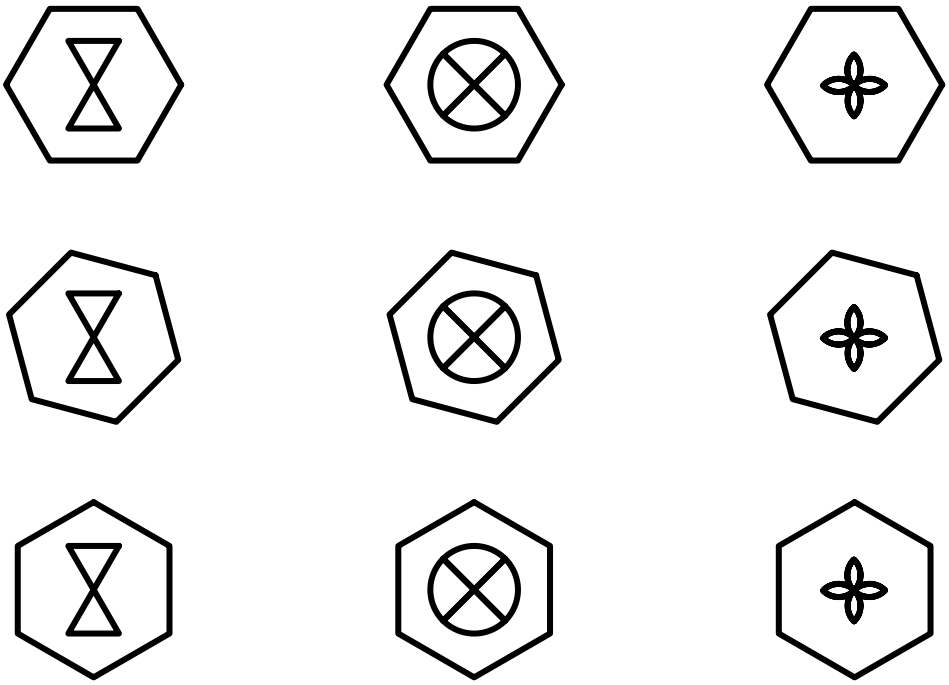


Rimepimento e orientamento

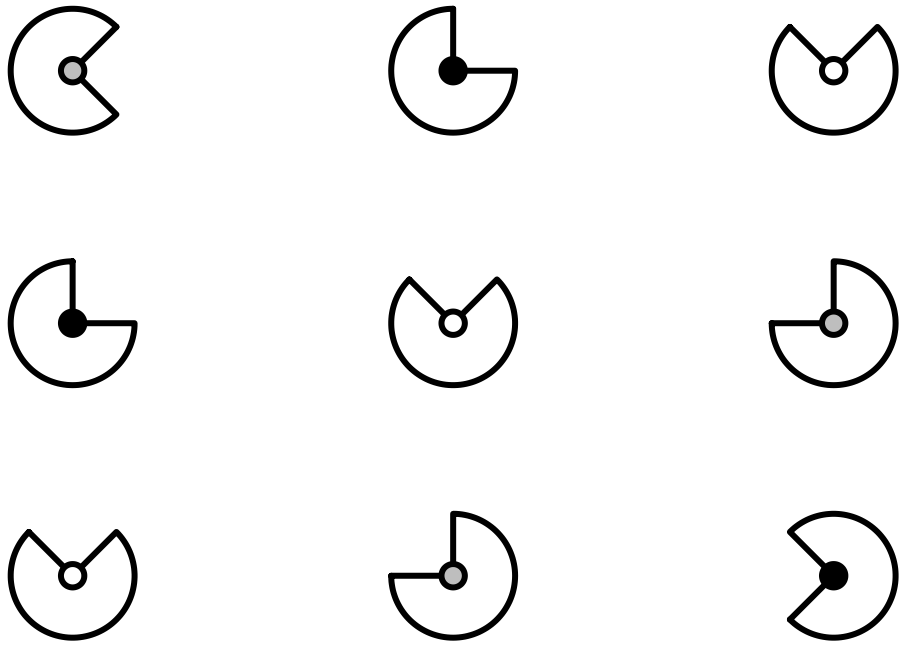
Verticale



Vertical e orizzontale

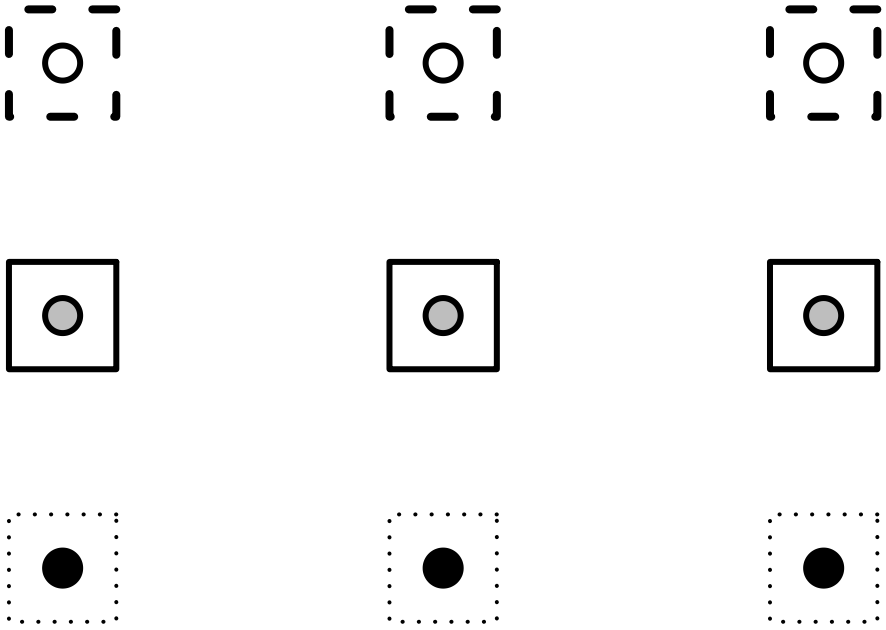


TL-LR entrambe

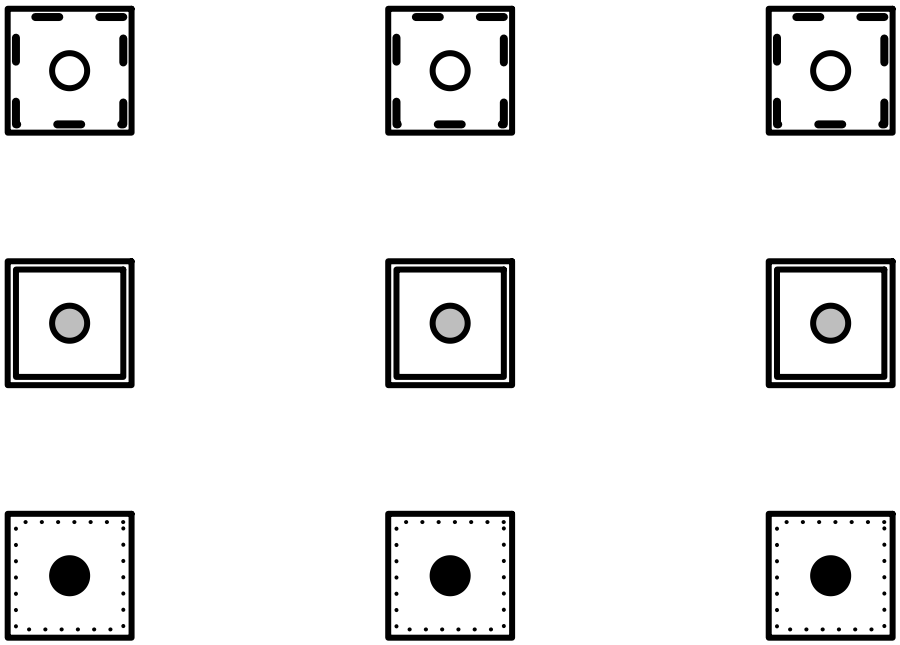


Riempimento e bordo

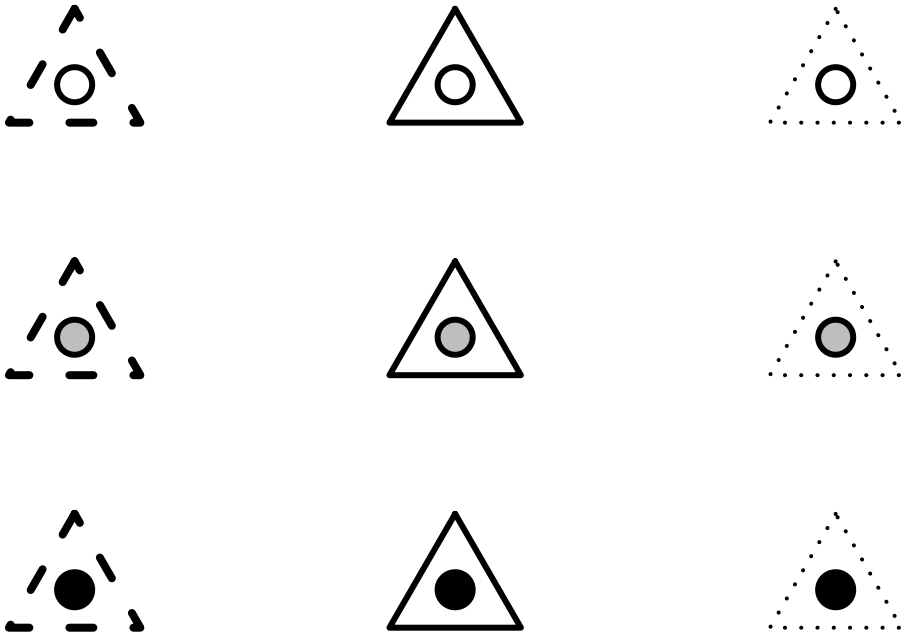
Verticale



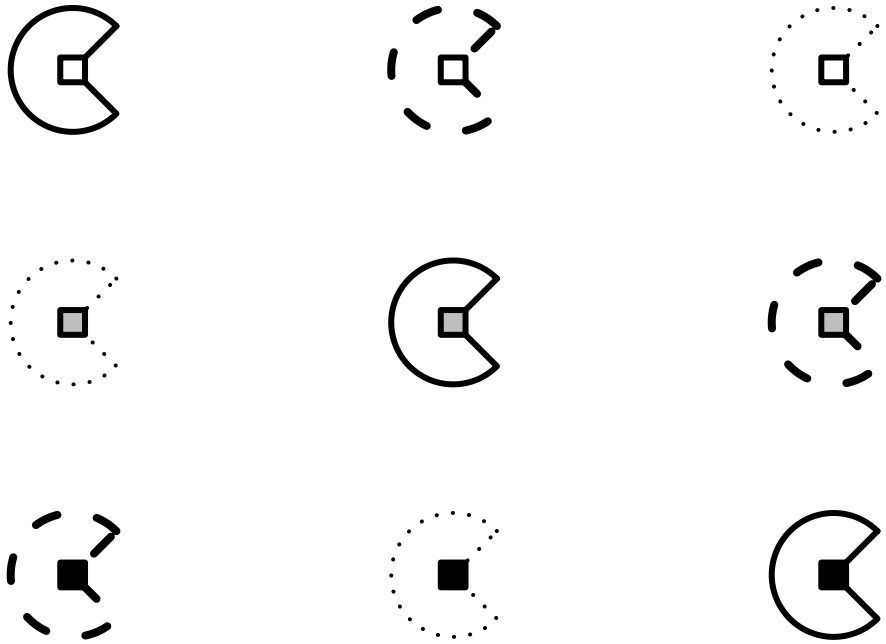
Bonus



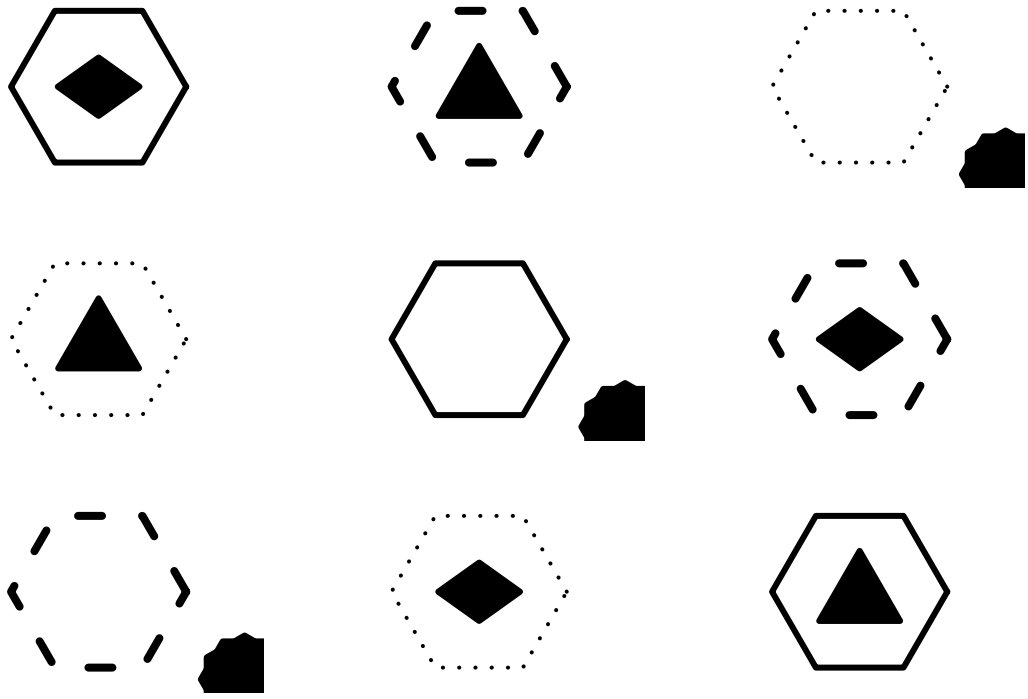
Verticale e orizzontale



TL-LR, Verticale

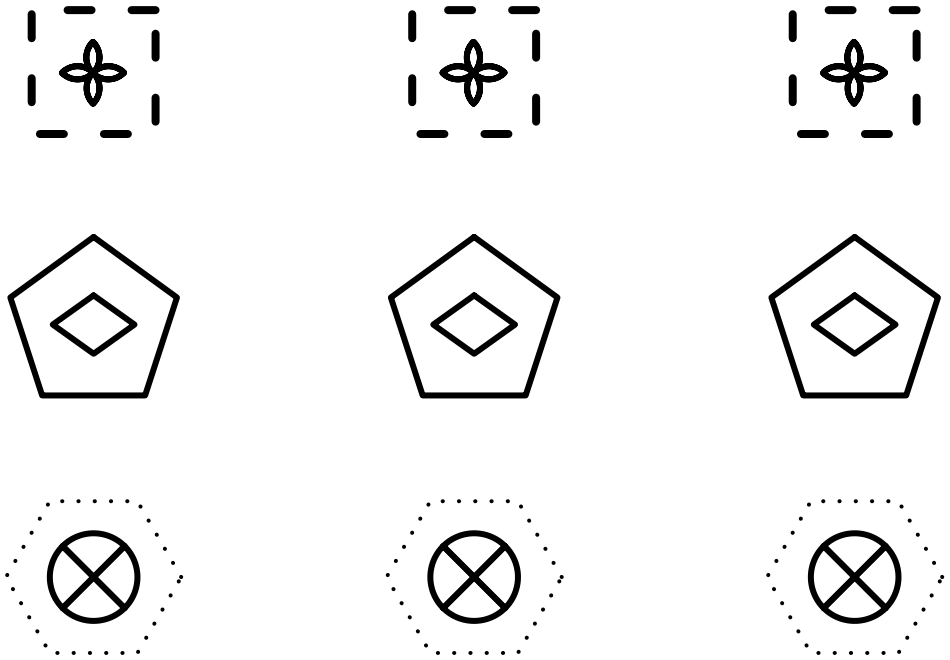


TL-LR

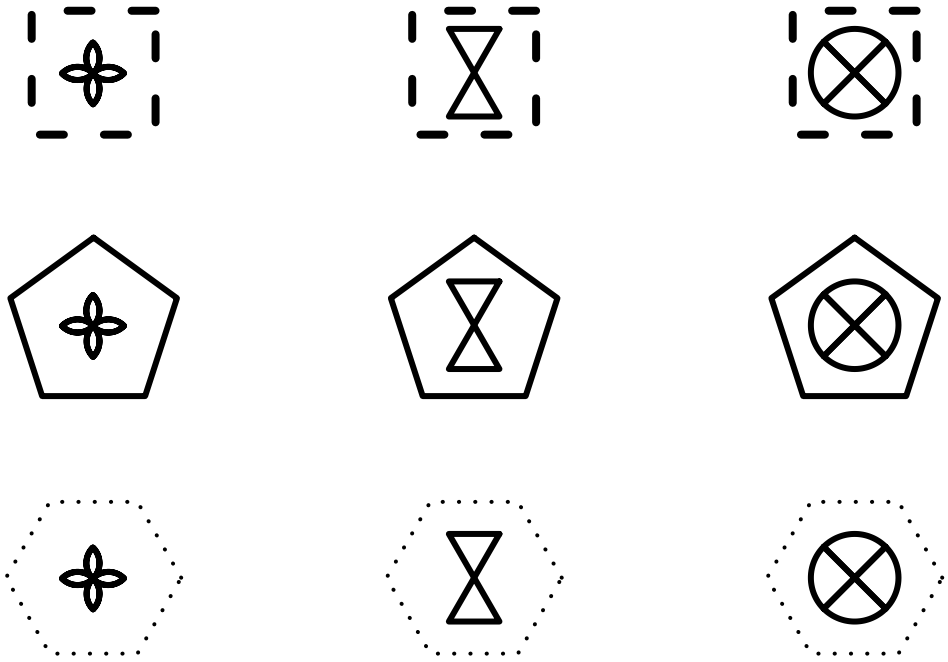


Forma riempimento bordo

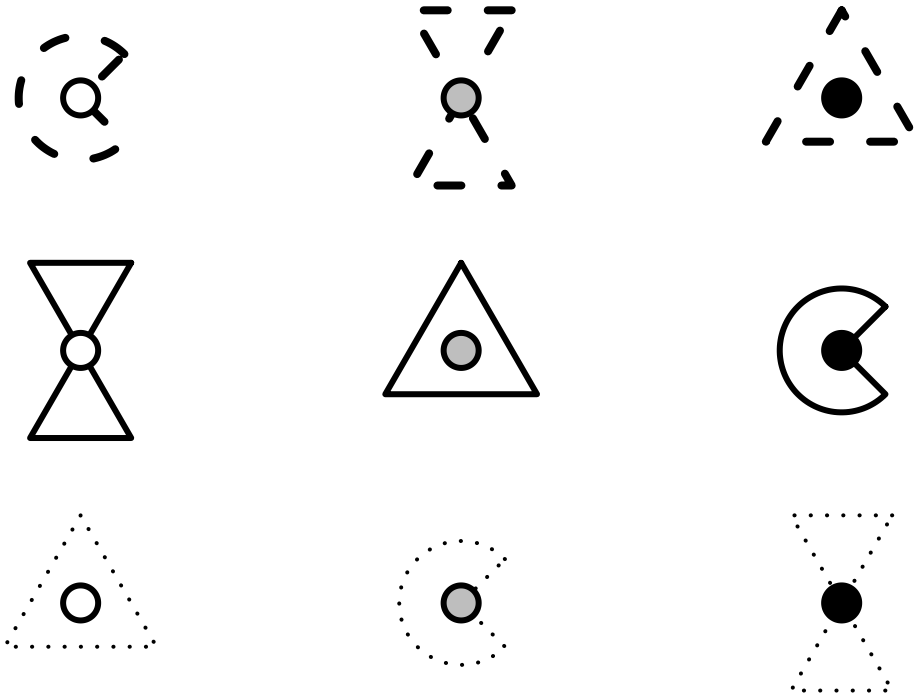
Verticale



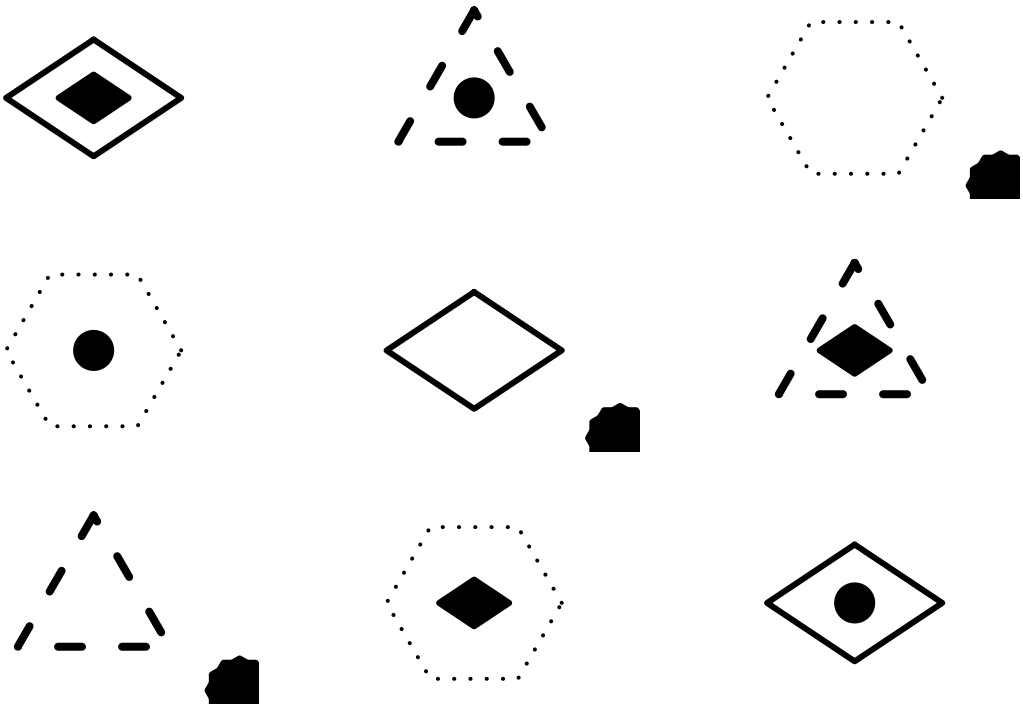
Verticale e orizzontale



TL-LR, Verticale

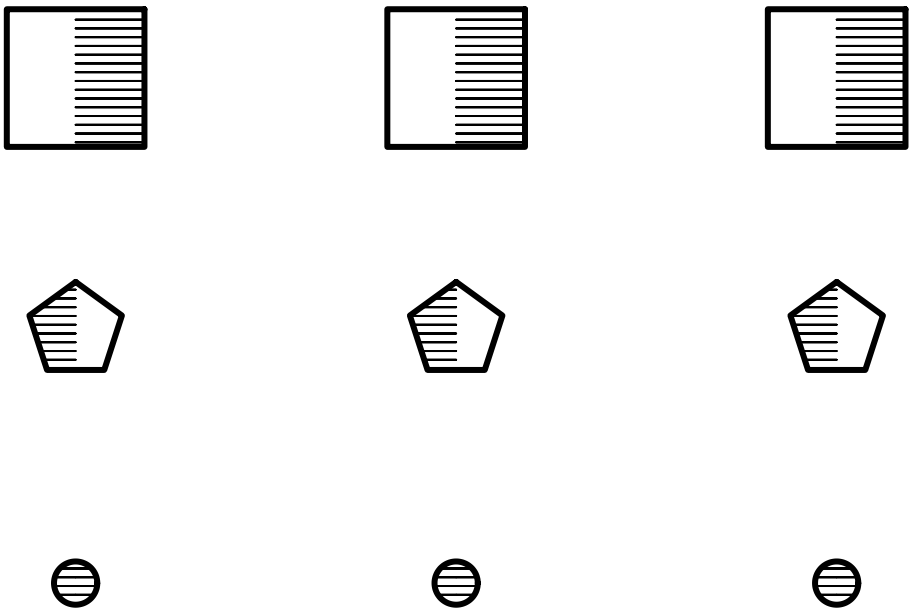


TL-LR, TR-LL

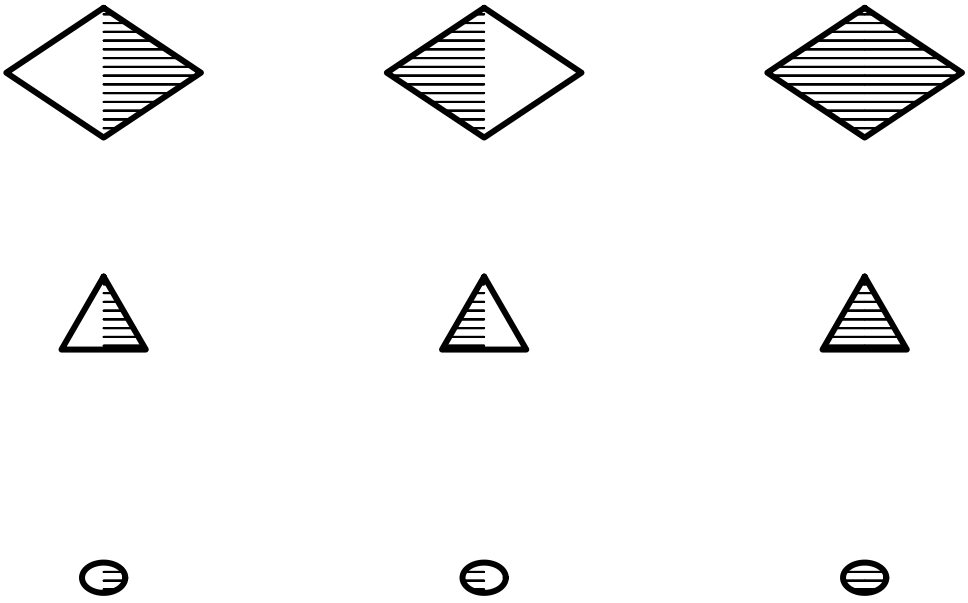


Forma riempimento dimensione

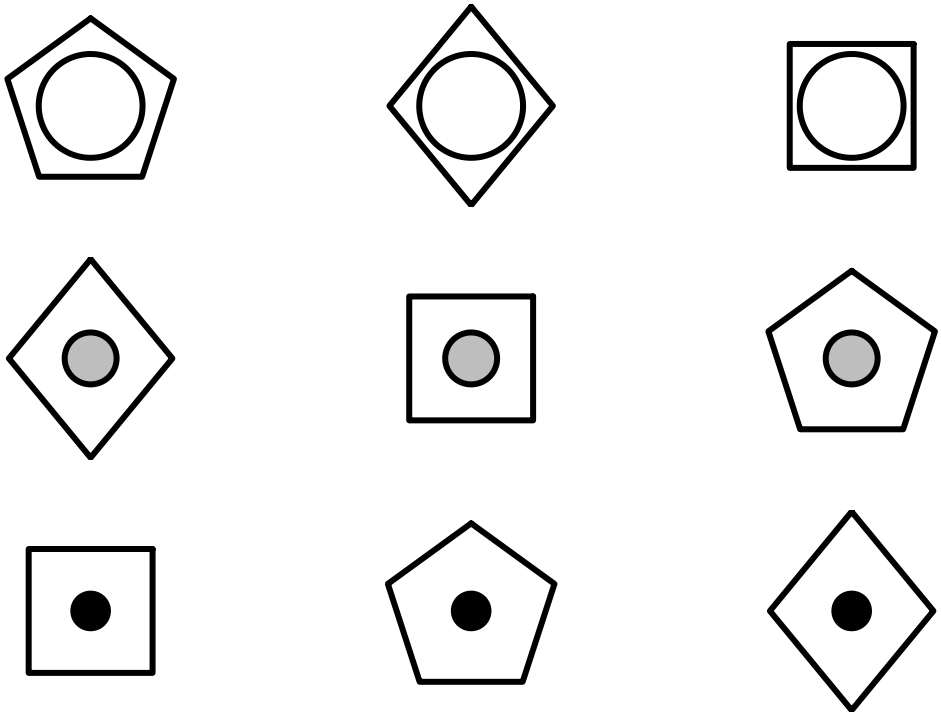
Verticale



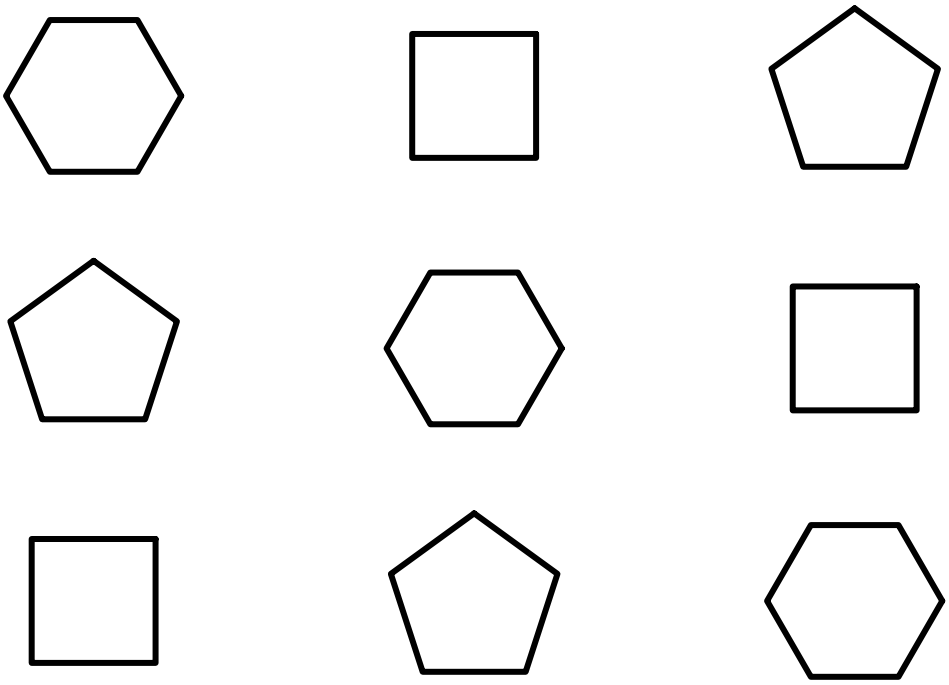
Verticale e orizzontale

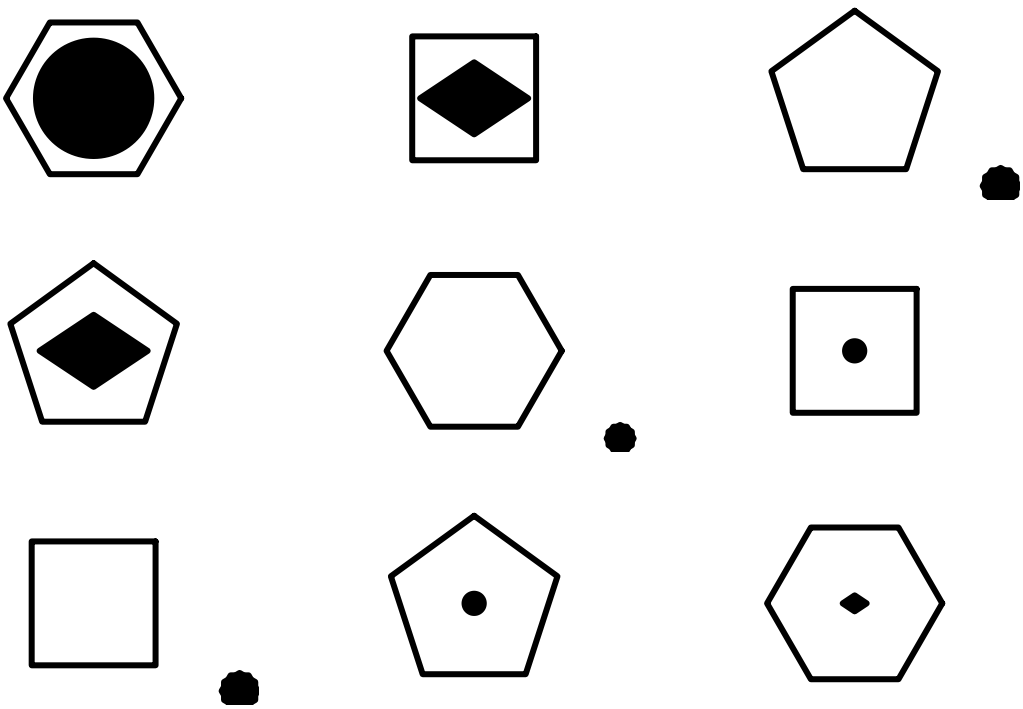


TL-LR, Verticale

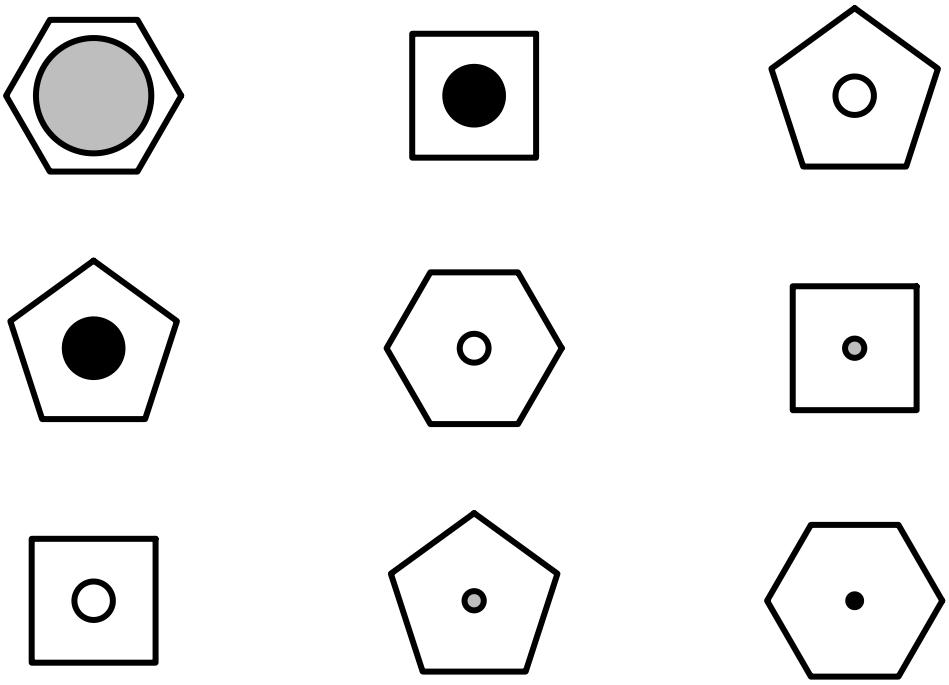


TR-LL, + altro



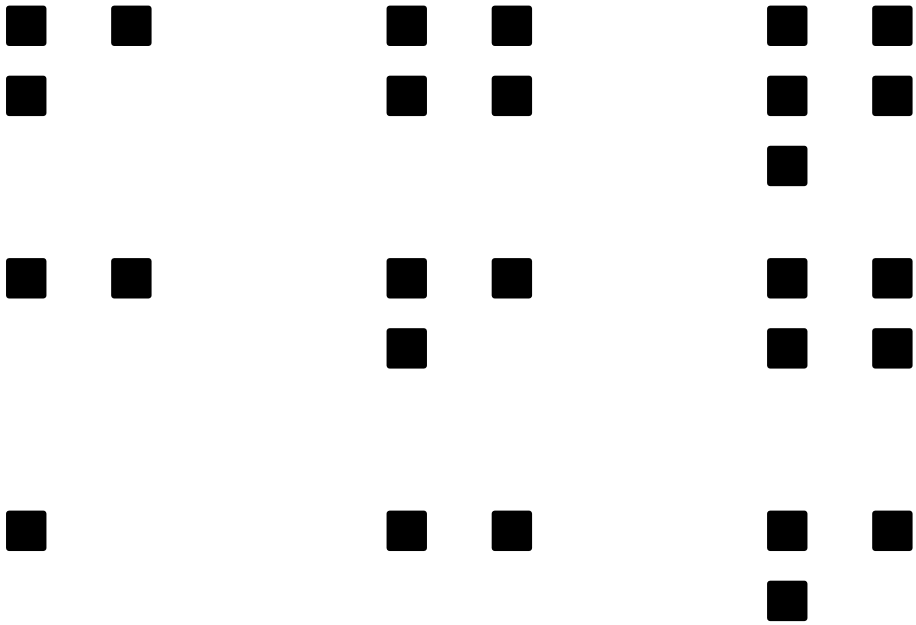


Bonus

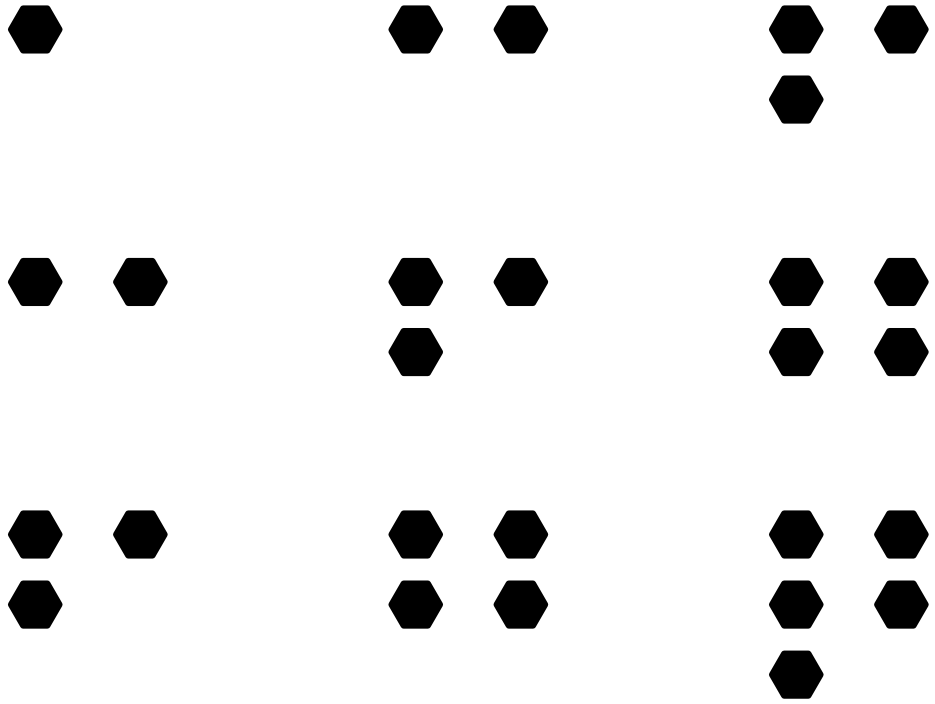


Progressione Quantitativa

LL-TR (crescente orizontale e decrescente verticale)

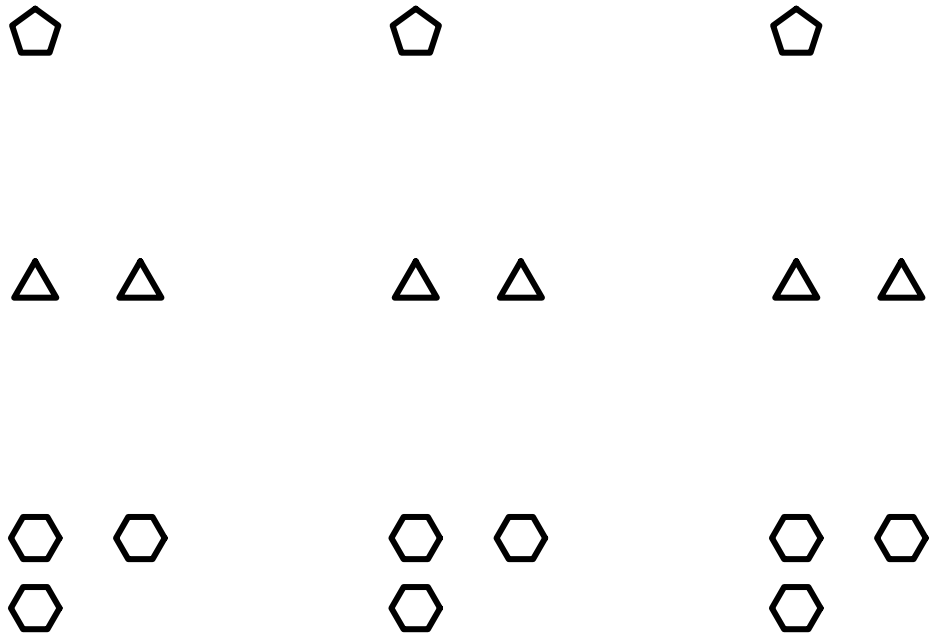


TL-LR

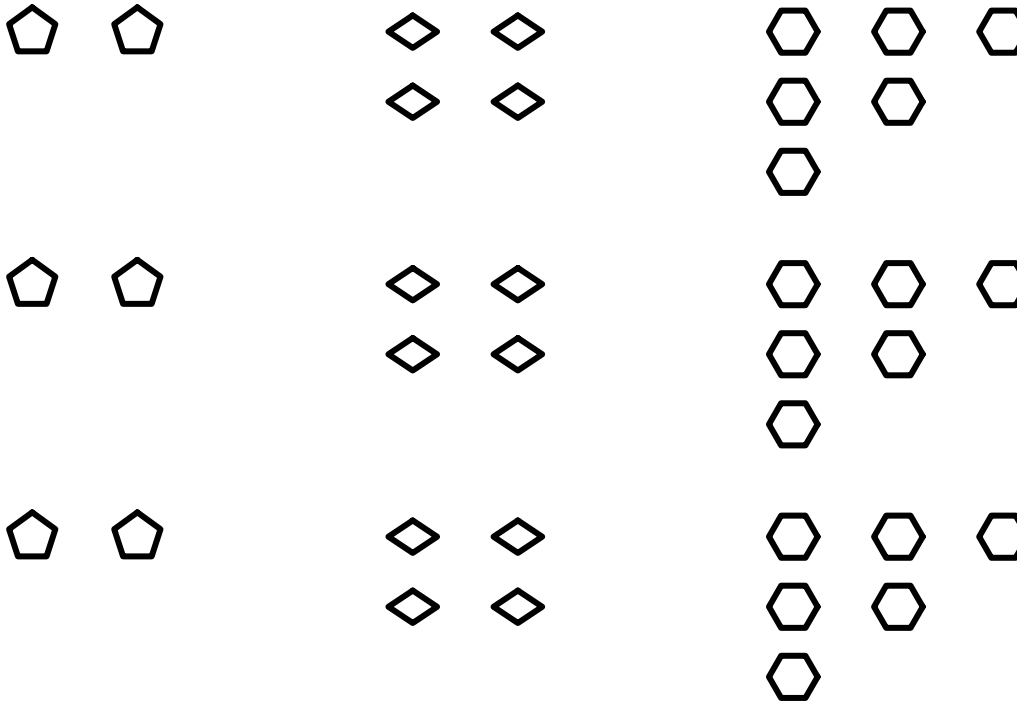


Forma, Progressione Quantitaiva

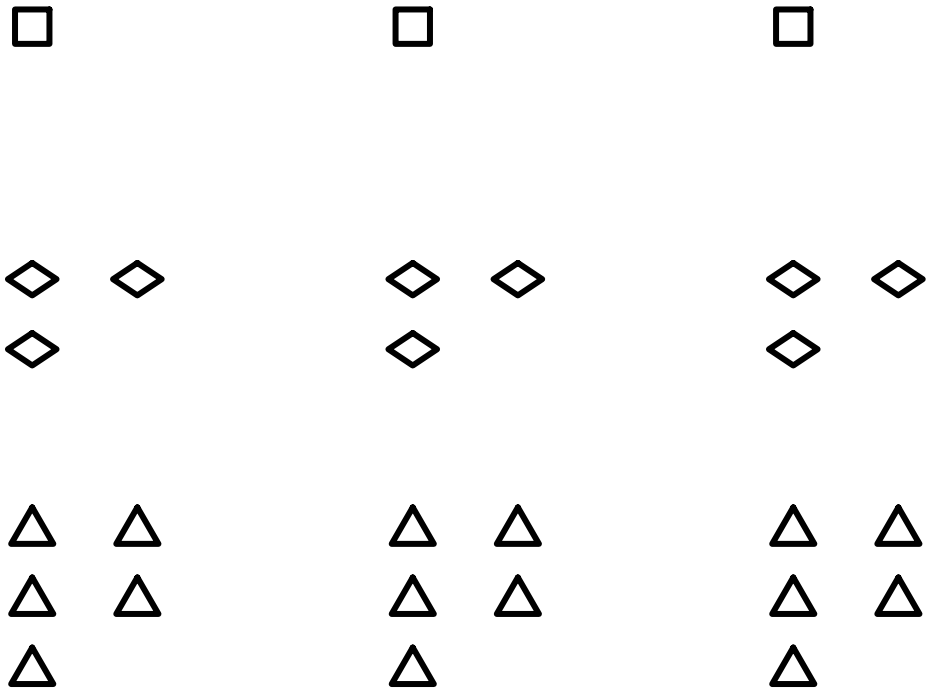
V su entrambe le regole



V per una regola e H per l'altra

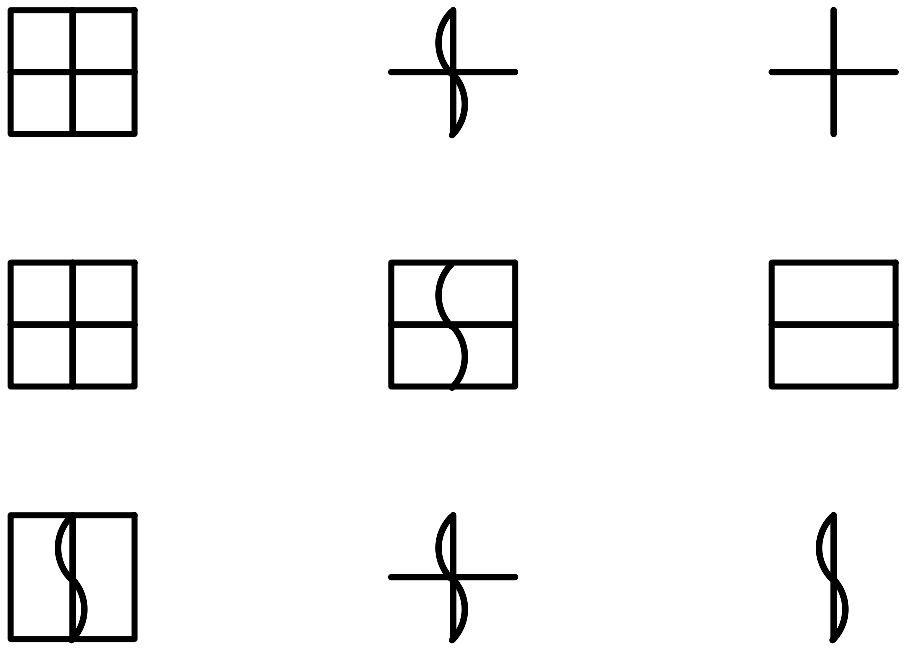


H per una regola e V per l'altra

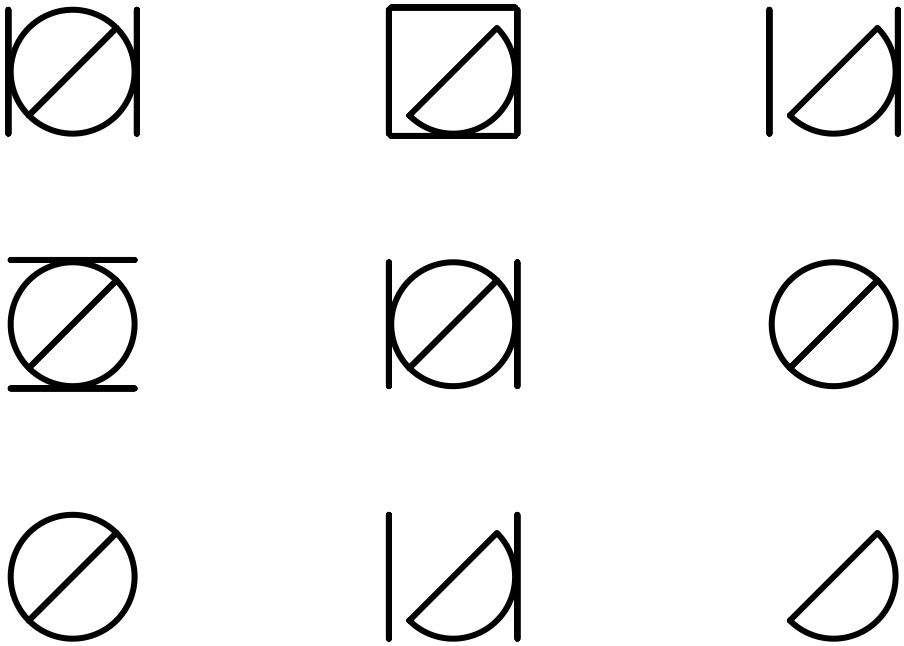


Ragionamento induttivo simbolico/astratto

AND orizzontale



AND orizzontale o verticale



OR orizzontale