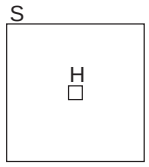
A Context–Sensitive Attribute NCE Graph Grammar for Tabular Form

Tomokazu ARITA and Takeo Yaku

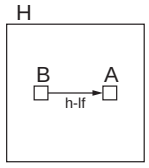
Dept. App. Math., Nihon Univ.

Productions and Semantic Rules for Tessellation Forms (Horizontal Derivation 1)



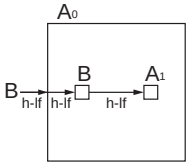
x(H) = 0
y(H) = 0

width(S) = width(H)
height(S) = height(H)



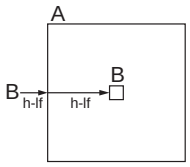
x(B) = x(A)
y(B) = y(A)
x(A) = x(H)+width(B)
y(A) = y(H)

width(H) = width(B)+width(A)
height(H) = max(height(B), height(A))



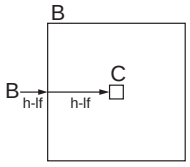
x(B) = x(A0)
y(B) = y(A0)
x(A1) = x(A0)+width(B)
y(A1) = y(A0)

width(A0) = width(B)+width(A1)
height(A0) = max(height(B), height(A1))



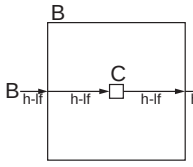
x(B) = x(A)
y(B) = y(A)

width(A) = width(B)
height(A) = height(B)



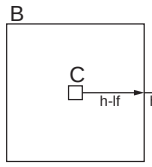
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



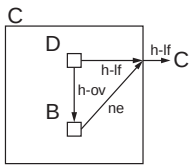
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



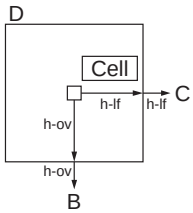
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



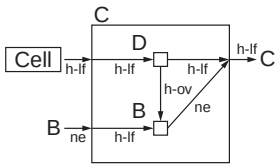
x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

width(C) = max(width(D) ,width(B))
height(C) = height(D)+height(B)



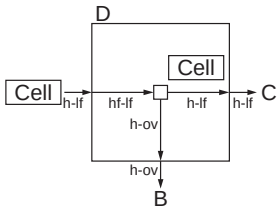
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



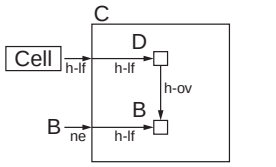
x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

width(C)
= max(width(D) ,width(B))
height(C) = height(D)+height(B)



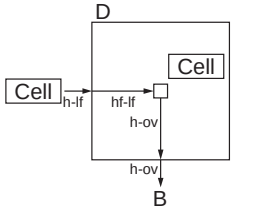
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

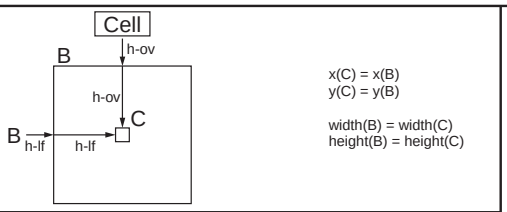
width(C)
= max(width(D) ,width(B))
height(C) = height(D)+height(B)



x(Cell) = x(D)
y(Cell) = y(D)

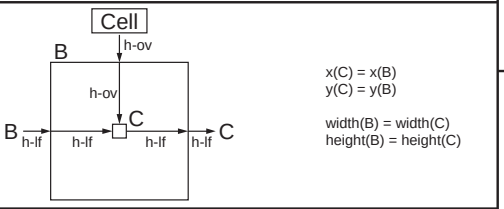
width(D) = WIDTH_cell
height(D) = HEIGHT_cell

Productions and Semantic Rules for Tessellation Forms (Horizontal Derivation 2)



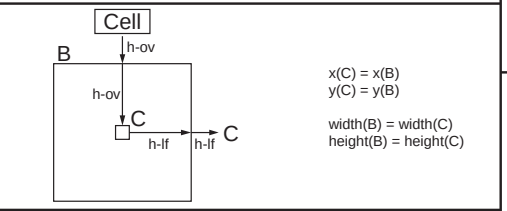
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



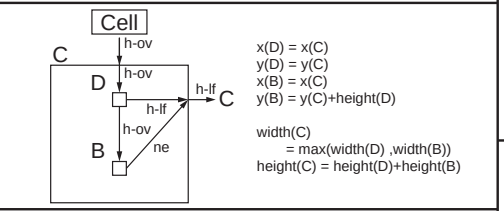
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



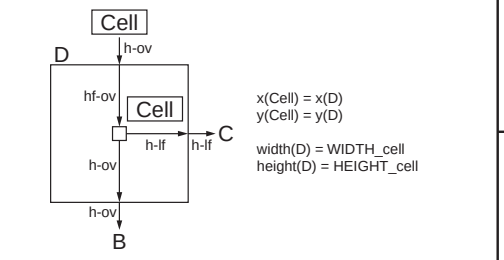
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



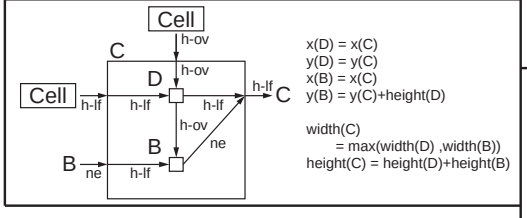
x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

width(C)
= max(width(D) ,width(B))
height(C) = height(D)+height(B)



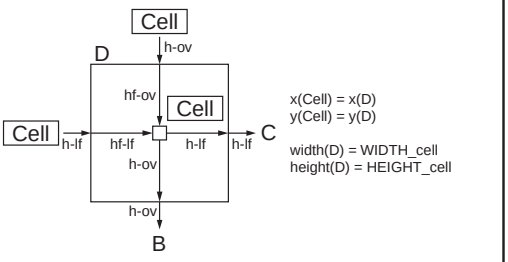
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



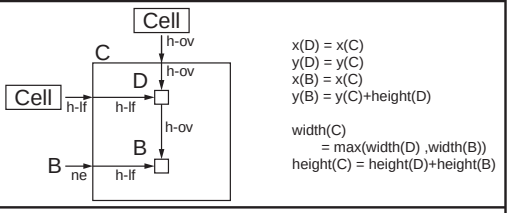
x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

width(C)
= max(width(D) ,width(B))
height(C) = height(D)+height(B)



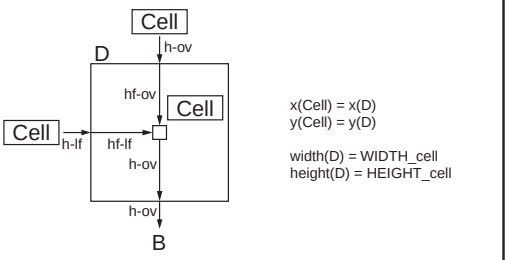
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



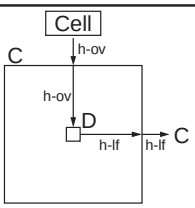
x(D) = x(C)
y(D) = y(C)
x(B) = x(C)
y(B) = y(C)+height(D)

width(C)
= max(width(D) ,width(B))
height(C) = height(D)+height(B)



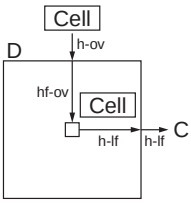
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



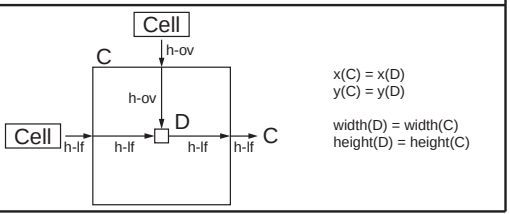
x(C) = x(D)
y(C) = y(D)

width(D) = width(C)
height(D) = height(C)



x(Cell) = x(D)
y(Cell) = y(D)

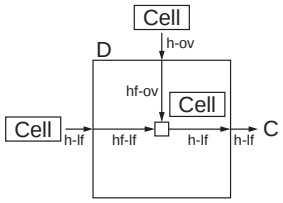
width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(C) = x(D)
y(C) = y(D)

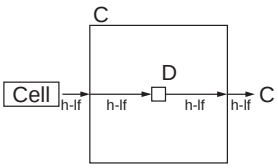
width(D) = width(C)
height(D) = height(C)

Productions and Semantic Rules for Tessellation Forms (Horizontal Derivation 3)



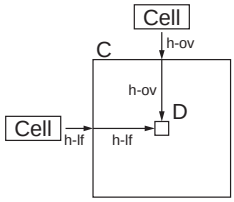
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



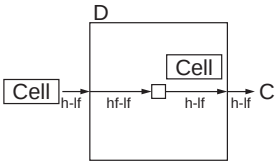
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



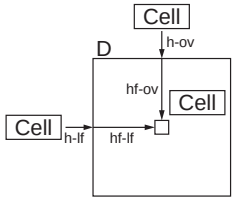
x(C) = x(D)
y(C) = y(D)

width(D) = width(C)
height(D) = height(C)



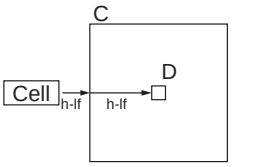
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



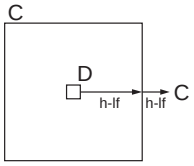
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



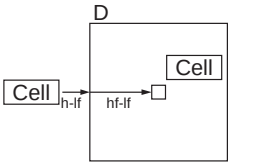
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



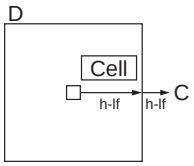
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



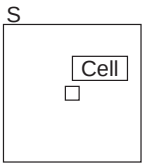
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(Cell) = x(D)
y(Cell) = y(D)

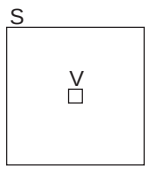
width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(Cell) = 0
y(Cell) = 0

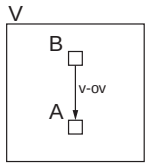
width(S) = WIDTH_cell
height(S) = HEIGHT_cell

Productions and Semantic Rules for Tessellation Forms (Vertical Derivation 1)



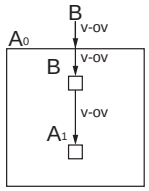
x(V) = 0
y(V) = 0

width(S) = width(V)
height(S) = height(V)



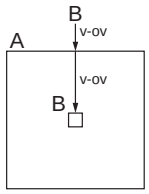
x(B) = x(V)
y(B) = y(V)
x(A) = x(V)
y(A) = y(V) + height(B)

width(V) = max(width(B), width(A))
height(V) = height(B) + height(A)



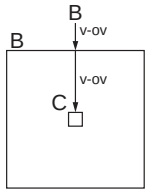
x(B) = x(A_0)
y(B) = y(A_0)
x(A_1) = x(A_0)
y(A_1) = y(A_0) + height(B)

width(A_0) = max(width(B), width(A_1))
height(A_0) = height(B) + height(A_1)



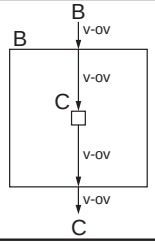
x(B) = x(A)
y(B) = y(A)

width(A) = width(B)
height(A) = height(B)



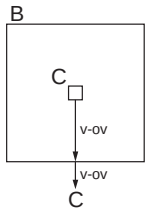
x(C) = x(B)
y(C) = y(B)

width(B) = width(A)
height(B) = height(A)



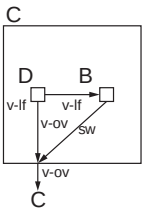
x(C) = x(B)
y(C) = y(B)

width(B) = width(A)
height(B) = height(A)



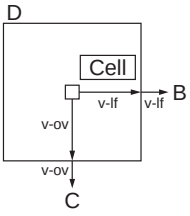
x(C) = x(B)
y(C) = y(B)

width(B) = width(A)
height(B) = height(A)



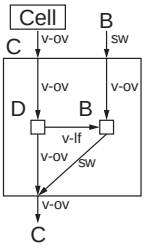
x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))



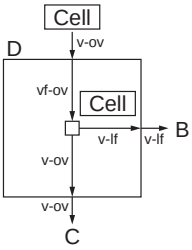
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



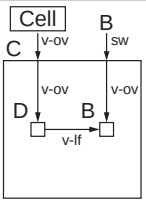
x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))



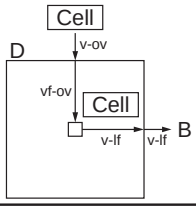
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

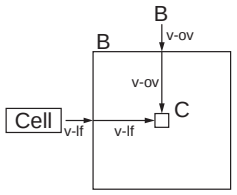
width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))



x(Cell) = x(D)
y(Cell) = y(D)

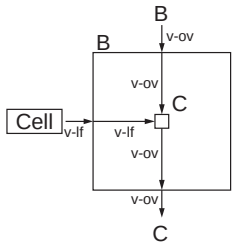
width(D) = WIDTH_cell
height(D) = HEIGHT_cell

Productions and Semantic Rules for Tessellation Forms (Vertical Derivation 2)



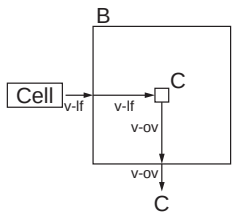
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



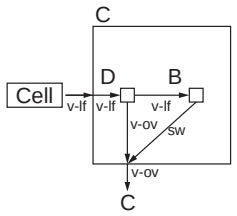
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



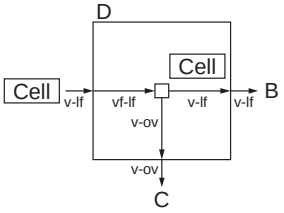
x(C) = x(B)
y(C) = y(B)

width(B) = width(C)
height(B) = height(C)



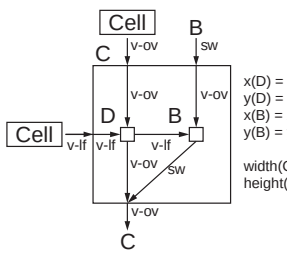
x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))



x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell

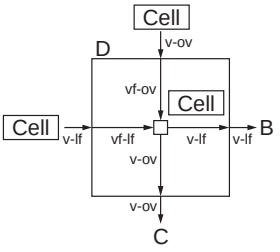


x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))

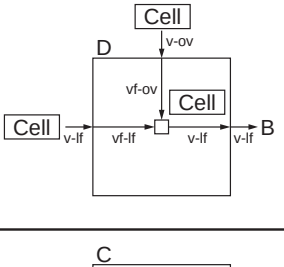
x(D) = x(C)
y(D) = y(C)
x(B) = x(C) + width(D)
y(B) = y(C)

width(C) = width(D) + width(B)
height(C) = max(height(D), height(B))



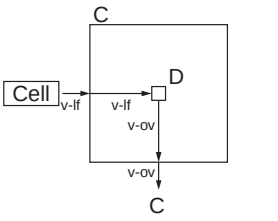
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



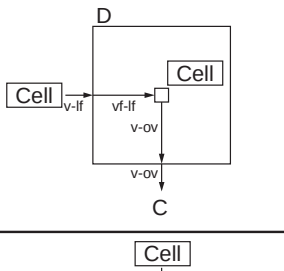
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



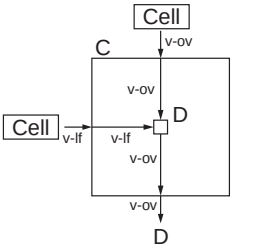
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



x(Cell) = x(D)
y(Cell) = y(D)

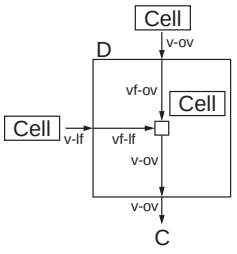
width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(D) = x(C)
y(D) = y(C)

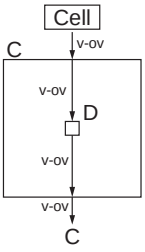
width(C) = width(D)
height(C) = height(D)

Productions and Semantic Rules for Tessellation Forms (Vertical Derivation 3)



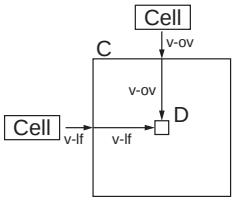
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



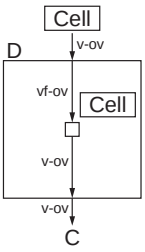
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



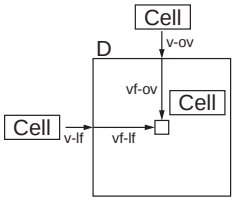
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



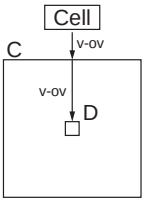
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



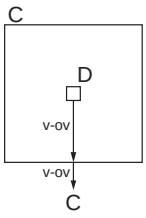
x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



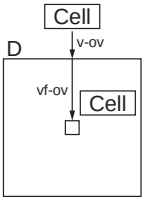
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



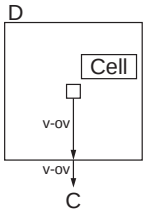
x(D) = x(C)
y(D) = y(C)

width(C) = width(D)
height(C) = height(D)



x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell



x(Cell) = x(D)
y(Cell) = y(D)

width(D) = WIDTH_cell
height(D) = HEIGHT_cell