|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 |  |

9.3

We will define the structuring element B as follows:

Where is the origin, set as a background pixel.

And so, if we define A as a rectangle(of foreground pixels, e.g 1) we will get that

is translated downwards and to the right, like so-

9.4

a. . Meaning, the set of points such that when translating B by a point, B is contained in A. Since B is a single point, will strictly be the points that are already within A. And so,

b. , with the last equality because the size of B is one. Meaning, the set of points such that when translating B by a point, some part of B is within A. Since B is a single point, overlapping some part of B is the same as overlapping all of B with A. And so, when B is of size 1, we get that .