Collision Detection 2017 Winter Exam

Ryan Madigan

3(a)(i) Binary Image Overlap Testing

(a)(ii)

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(60,102,195,153,153,195,102,60)

(a)(iii)

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| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
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(a)(iv)

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The pixels of the sprites overlap so collision would occur.

3(b)(i)

They are not accurate because they can’t rotate.

In modern game engines they are used to deal with the ‘handshake’ problem.

(b)(ii)

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|  | X axis |  |  |  |  |  |  |  |  |
|  |  | Bs | Cs | Bf | Cf | Ds | As | Df | Af |
|  | Sorted | 110 | 130 | 150 | 170 | 375 | 400 | 405 | 420 |
|  | Active | B | B,C | C | null | D | D,A | A | null |
|  | Collision |  | (b,c) |  |  |  | (D,A) |  |  |
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|  | Y Axis |  |  |  |  |  |  |  |  |
|  |  | Bs | Cs | As | Ds | Bf | Cf | Af | Df |
|  | Sorted | 280 | 285 | 290 | 295 | 300 | 305 | 310 | 315 |
|  | Active | B | B,C | B,C,A | B,C,A,D | C,A,D | A,D | D | null |
|  | Collision |  | (B,C) | (B,A)(C,A) | (B,D)(C,D)(A,D) |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
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|  | Z Axis |  |  |  |  |  |  |  |  |
|  |  | Bs | Bf | Cs | Cf | As | Af | Ds | Df |
|  | Sorted | 80 | 120 | 295 | 305 | 480 | 520 | 599 | 601 |
|  | Active | B | null | C | null | A | null | D | null |
|  | Collision |  |  |  |  |  |  |  |  |