

| RCC Relation | Polynomial Encoding |
|----------------------------------|---|
| contact (C) | $\Delta(c_1, c_2) \leq (r_1 + r_2)^2$ |
| discrete from (DR) | $\Delta(c_1, c_2) \geq (r_1 + r_2)^2$ |
| disconnects (DC) | $\Delta(c_1, c_2) > (r_1 + r_2)^2$ |
| externally connects (EC) | $\Delta(c_1, c_2) = (r_1 + r_2)^2$ |
| overlaps (O) | $\Delta(c_1, c_2) < (r_1 + r_2)^2$ |
| partially overlaps (PO) | $(r_1 - r_2)^2 < \Delta(c_1, c_2) < (r_1 + r_2)^2$ |
| part of (P) | $\Delta(c_1, c_2) \leq (r_1 - r_2)^2 \wedge (r_1 \leq r_2)$ |
| proper part of (PP) | $\Delta(c_1, c_2) \leq (r_1 - r_2)^2 \wedge (r_1 < r_2)$ |
| tangential proper part (TPP) | $\Delta(c_1, c_2) = (r_1 - r_2)^2 \wedge (r_1 < r_2)$ |
| nontangential proper part (NTPP) | $\Delta(c_1, c_2) < (r_1 - r_2)^2 \wedge (r_1 < r_2)$ |
| equal (EQ) | $x_1 = x_2 \wedge y_1 = y_2 \wedge r_1 = r_2$ |