25 Sesquilinear forms and unitarity

Computations for section 4.5

Preparation

Definition of c in (4.91).

In[ ]:=
```
Clear[c, j, nu]
c[p_, r_, nu_] = Gamma[1 + (j - nu + p + r) / 2] Gamma[1 + (-j - nu + p - r) / 2]
    Gamma[1 + (j + nu + p + r) / 2] ^ (-1) Gamma[1 + (-j + nu + p - r) / 2] ^ (-1);
```

The function c determines an invariant form. The question is whether it, or a holomorphic multiple of it, is positive definite on submodules, in which the K-types are $(\tau^h)_p$ with $h = h_0 + 3(a - b)$ and $p = p_0 + a + b$.

In[ ]:=
```
Clear[a, b, h, p, r, h0, r0, p0, lsub0, lsub]
lsub0[h0_, p0_] = {h → h0 + 3 (a - b), p → p0 + a + b, r → (h - 2 j) / 3};
lsub[h0_, p0_] := Union[lsub0[h0, p0], {Gamma[aa_] :→ Factorial[aa - 1]}];
```

In[ ]:=
```
Clear[gamsub]
gamsub[xx_] := Gamma[xx] → Pi Gamma[1 - xx] ^ (-1) Sin[Pi xx] ^ (-1)
```

25a. Type II_+

25b. Comparison of Tables 4.3 and 4.14

25c. Types IF and FI

25d. Type FF