```
In[71]:=  ClearAll[m, mm, c, cc, cs, ccs]

In[362]:=  (* nonempty sequence *)
          m = mm /. Solve[mm == x + x mm, mm];
          (* nonempty Catalan *)
          c = cc /. Solve[cc == x + 2 cc x + x cc^2, cc][[1]];
          (* nonempty Catalan starred *)
          cs = ccs /. Solve[ccs == c ccs x + ccs x + c x + x, ccs][[1]];
          (* Omega_infty(C) *)
          oinfc = oinfcc /.
             Solve[oinfcc == (m + 1) x + 2 oinfcc (m + 1) x + oinfcc^2 (m + 1) x, oinfcc][[2]];
          (* Omega_01(C) *)
          o01c = o01cc /. Solve[o01cc == (m + 1) x + 2 oinfc (m + 1) x^2 + 2 o01cc x +
                o01cc c x + oinfc o01cc x + oinfc^2 (m + 1) x^2, o01cc][[1]];
          (* Omega_10(C) *)
          o10c =
            o10cc /. Solve[o10cc == x (m + 1) x + 2 c x (m + 1) x + 2 o10cc (m + 1) x + c c x (m + 1) x +
                o10cc oinfc (m + 1) x + c o10cc (m + 1) x, o10cc][[1]];
          (* Omega_11(C) *)
          o11c =
            o11cc /. Solve[o11cc == x (m + 1) x x + 2 o11cc x + 2 c x (m + 1) x x + 2 o10c (m + 1) x x +
                o10c oinfc (m + 1) x x + c o10c (m + 1) x x + o11cc c x +
                c o11cc x + c c x (m + 1) x x + o10c o10c x, o11cc][[1]];
          (* Omega_10(Cstar) *)
          o10cs = o10ccs /.
             Solve[o10ccs == x (m + 1) x + o10c (m + 1) x + c x (m + 1) x + o10ccs (m + 1) x + c x (m + 1)
                 x + o10c oinfc (m + 1) x + c o10ccs (m + 1) x + c c x (m + 1) x, o10ccs][[1]];
          (* Omega_11(Cstar) *)
          o11cs = o11ccs /.
             Solve[o11ccs == (m + 1) x x + o11c x + c x (m + 1) x x + o10c (m + 1) x x + o11ccs x +
                o10cs (m + 1) x x + o10c oinfc (m + 1) x x + c o10cs (m + 1) x x +
                o11ccs c x + c o11ccs x + o10c o01c x, o11ccs][[1]];
          (* Omega_11(barCstar) *)
          o11bcs = o11bccs /. Solve[o11bccs == o11cs x + o10cs (m + 1) x x, o11bccs][[1]];
          (* final function enumerating Av(321|21) *)
          f = ff /. Solve[ff == 1 + m + o11bcs / x, ff][[1]];
          CoefficientList[Series[f, {x, 0, 25}], x]

Out[373]=  {1, 1, 2, 4, 17, 80, 382, 1813, 8547, 40 096, 187 498, 875 099,
           4 080 294, 19 019 584, 88 676 865, 413 701 822, 1 931 782 007, 9 030 586 650,
           42 269 741 911, 198 129 000 107, 930 046 910 109, 4 372 413 409 174,
           20 587 731 934 356, 97 089 049 201 228, 458 568 018 123 854, 2 169 209 354 365 436}
```