$$+ 31 q^{20} + 35 q^{21} + 41 q^{22} + 46 q^{23} + 54 q^{24} + 61 q^{25} + 70 q^{26} + 117 q^{30} + 79 q^{27}$$

```
> pmake(GFPRR,q,30);
```

$$1/((1 - q)\ (1 - q^{4})\ (1 - q^{6})\ (1 - q^{9})\ (1 - q^{11})\ (1 - q^{14})\ (1 - q^{16})\ (1 - q^{19})\ (1 - q^{21})$$
$$(1 - q^{24})\ (1 - q^{26})\ (1 - q^{29}))$$

==

Let $R(n)$ = # of partitions of n ~~into part~~ in which diff. between parts is at least 2.

Eg $n=9$ PTNS:

9
8 + 1
7 + 2
6 + 3
5 + 3 + 1

So $R(9) = 5$.

It seems that

$$\sum_{n=0}^{\infty} R(n) q^n = \frac{1}{(1-q)(1-q^4)(1-q^6)(1-q^9)\cdots}$$

$$= \prod_{\substack{n \geq 1 \\ n \equiv 1,4 \pmod 5}} \frac{1}{(1-q^n)} \quad \text{for } |q|<1.$$

We will prove this later. This identity is called the 1st Rogers-Ramanujan Identity.