

Project

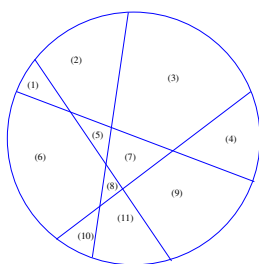
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November 15, 2015

0.1 Illustration of structures

1. $n = 4$

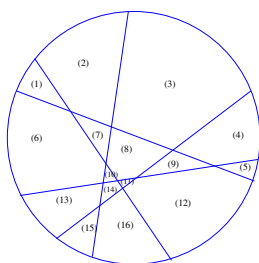
(a) Pancake structure



(b) AA

2. $n = 4$

(a) Pancake structure



(b) AA

0.2 Formula Demonstrations

$$1. \ a(n) = \text{Binomial}(n+2, 1) - 2 \times \text{Binomial}(n+1, 1) + \text{Binomial}(n+2, 2)$$

$$\binom{n+2}{1} - 2 \times \binom{n+1}{1} + \binom{n+2}{2}$$

$$(a) \ n = 4$$

$$\begin{aligned} a(4) &= \binom{4+2}{1} - 2 \times \binom{4+1}{1} + \binom{4+2}{2} \\ a(4) &= \binom{6}{1} - 2 \times \binom{5}{1} + \binom{6}{2} \\ a(4) &= 6 - 10 + 15 \\ a(4) &= 11 \end{aligned}$$

$$(b) \ n = 5$$

$$\begin{aligned} a(5) &= \binom{5+2}{1} - 2 \times \binom{5+1}{1} + \binom{5+2}{2} \\ a(5) &= \binom{7}{1} - 2 \times \binom{6}{1} + \binom{7}{2} \\ a(5) &= 7 - 12 + 21 \\ a(5) &= 16 \end{aligned}$$

$$2. \ G.f : A(x) = (1 - x + x^2)/(1 - x)^3$$

$$(a) \ n = 4$$

□

$$(b) \ n = 5$$

□