Anton's class 1

Based on http://drorbn.net/bbs/show?shot=Alekseev-130916-042803.jpg

October-22-13
1:48 PM

1. Define an expansion for $R \supset I$

2. Example: $(A = \bigoplus I^m/I^{m+1}$

$R = C^\infty(\mathbb{R}^n)$ $I = \{f : f(0) = 0\}$

Non uniqueness! $Z = \sum \frac{1}{n!} p_m(x) \frac{\partial}{\partial x^n}$

where $p_m(x) = x^n + \ldots$

3. Define "homomorphic expansion"

4. But it all makes sense for groups!

---

5. $PB_n = \pi_1(\mathbb{C}^n \setminus \text{diagonals})$

6. $PB_n = F_{n-1} \rtimes (F_{n-2} \rtimes \ldots)$

   a. Geometrically.

   b. Using

$$0 \to F_{n-1} \to PB_n \twoheadrightarrow PB_{n-1} \to 1$$

7. $B_n = \pi_1((\mathbb{C}^n \setminus \text{diags})/S_n)$

$= \text{pictures}$

$= \langle \sigma_1 \ldots \sigma_{n-1} : \ldots \rangle$

$$0 \to PB_n \hookrightarrow B_n \overset{\cancel{\longleftarrow}}{\longrightarrow} S_n \to 1$$

So $B_n = S_n \times PB_n$

set theoretically?

HW. 1. Prove that every expansion is of that form

2. Prove that Taylor is the unique homo. expansion.

3. Is there a homomorphic expansion for $\mathbb{Z}F_n$?

4. Something about group-like-ness?

5. The KZ formula, if well-defined, is a homomorphic expansion.

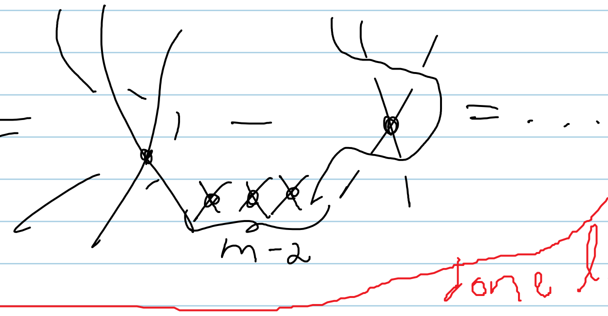
8. $\mathcal{A}$, $\mathcal{A} \to A$

9. $\mathcal{A}$ – expansions.

8. $\mathcal{A}$, $\mathcal{A} \to A$

Geometrically!

$0 =$



$= \dots$

done link.

9. $\mathcal{A}$-expansions.

10. The KZ formula.