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Chapter 5

1 message

Izzet Coskun <coskunizzet@gmail.com> Tue, Nov 14, 2023 at 2:58 PM
To: Joe Harris <harris@math.harvard.edu>, David Eisenbud <de@berkeley.edu>

Dear Joe and David,

Here are some thoughts on Chapter 5.

First a general question, is there a reason why certain facts happen in the future tense? For example, at the end of the proof of 5.1.1, you say `these closures will be singular at the unique point...', why not `these closures are singular at the unique point...'? This is just an example. The same construction happens throughout the book. If you decide to eliminate some of these, you would need to do a search and replace.

page 112, displayed equation has an overfull box and the associated black box

page 113, proof of Corollary 5.1.2, line 4, the index should be p_{g+2} currently it is p_g + 2

page 114, line 3, better to write \omega = \pi^* \left(.. \right)

page 114, line 4 of Theorem 5.2.1, do you want compactified to a compact Riemann surface C 'in' a unique way?

page 117, display in Example 5.2.3, do you want a period after (3^{b-2}-1)/2?

I am trying to parse the last sentence of 5.2.3. You seem to say there is nothing special about 3 or P^1, except that 3 is very special for your count and you parenthetically say that counting covers of higher genus curves gets complicated. Are you trying to say that `one can use a similar strategy to count covers in general, but the combinatorics gets more complicated?'

page 118, line 3, extra `a' or plural in `from a hyperelliptic curves'

page 119, `the sheaves of the form K^2(p) form' too many forms. Maybe `the family of sheaves of the form K^2(p) is one-dimensional.'?
As another example of a fact in the future tense, `Thus in general Q will be smooth', why not `Thus in general Q is smooth'.

page 120, line 20, should it be `the vector space of cubics'? The following sentence is a little awkward. Maybe it is better to say, `The subspace of cubics divisible by Q has dimension 4.'

page 120, last sentence of 5.3.3, a period at the end of the last sentence.

page 121, showing dim M_2 = 3, in the last count you might want to point out that you are ignoring curves on a singular quadric since these curves happen in codimension 1.

page 122, line -4, complete intersection of the quadric with `a' cubic

page 123, line 3, here is my chance to channel Offer Gabber (this almost never happens), on (at least) 4 `independent' cubics

page 123, last sentence of 5.4, `4 3x3' looks a little awkward, maybe omit 4 or write four.

page 125, Example 5.5.4, there is an overfull box
In the second bullet point, if you break up the second sentence, you'll make it easier to understand.

page 126, line 9, I don't understand the isomorphism L(D)/L(-D) = L \otimes O_C(-2D). Isn't one a sheaf supported along 2D and the other a line bundle? Why don't you write down the exact sequence 0 -> L(-D) -> L(D) -> L(D)/L(-D) -> 0 to make the discussion clearer.

page 127, Lemma 5.5.6 (2) has an overfull box

page 129, it might be better to write (2g+2)nd row of Pascal's triangle

page 130, In exercise 5.6.9, it might be better to omit the commas in the coordinates p_{ij}
part (2), you have iff and only if