Corrections to the second printing of

*Commutative Algebra with a View Toward Algebraic Geometry*

This file contains all the corrections to the second printing that I knew of as of 9/7/98. References are of the form n;m. where n is a page number in the second printing, m a line number. Descriptive matter (that is, things not actually appearing in the text) is surrounded by double parentheses ((like this)).

—David Eisenbud

<table>
<thead>
<tr>
<th>Insert:</th>
</tr>
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<tbody>
<tr>
<td>Third corrected printing</td>
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<table>
<thead>
<tr>
<th>22; 15.</th>
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<tbody>
<tr>
<td>Replace:</td>
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<tr>
<td>is an</td>
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<tr>
<td>by:</td>
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<tr>
<td>is a primitive</td>
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<tr>
<th>35; 8.</th>
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<tr>
<td>Delete:</td>
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<tr>
<td>reduced</td>
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<table>
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<tr>
<th>36; -7.</th>
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<tr>
<td>After</td>
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<td>category of</td>
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<td>insert:</td>
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<tr>
<td>reduced</td>
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<tr>
<th>43; -13.</th>
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<tr>
<td>Replace:</td>
</tr>
<tr>
<td>this is</td>
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<tr>
<td>by:</td>
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<tr>
<td>we make the convention that this is</td>
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<table>
<thead>
<tr>
<th>52; 8-15.</th>
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<tbody>
<tr>
<td>Replace:</td>
</tr>
<tr>
<td>((the labels a-h))</td>
</tr>
<tr>
<td>by:</td>
</tr>
<tr>
<td>((the numbers 1-8))</td>
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<tr>
<th>52; -8.</th>
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<tr>
<td>Replace:</td>
</tr>
<tr>
<td>a and b</td>
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<tr>
<td>by:</td>
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<td>1 and 2</td>
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<th>52; -7.</th>
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<tbody>
<tr>
<td>Replace:</td>
</tr>
<tr>
<td>g and h</td>
</tr>
<tr>
<td>by:</td>
</tr>
<tr>
<td>7 and 8</td>
</tr>
</tbody>
</table>
52; -4.
Replace:
c, d and h
by:
3, 4 and 8

57; -2.
Replace:
3.5
by:
1.3.6

67; 9.
After ideals insert:
P
83; 1–2.
Replace:
x
by:
f ((two occurrences))

90; -7.
Replace:
union
by:
finite union

111; 12.
Replace:
in press
by:
1995

118; -8.
Replace:
algebra
by:
algebraic

118; -5.
After . insert:
Assuming that X and Y are affine, so is Y', and its coordinate ring is the normalization of the image of A(Y') in A(X).

124; 4.
Replace:
Lemma
by:
Theorem
129; -14.
Replace:
Hartshome
by:
Hartshorne

130; fig 4.4.
Replace:
((the upside down U))
by:

139; -10.
Before
Let
insert:
((as a new part a.))
a. Show that the quotient field of $k[\Gamma]$ is $k[G(\Gamma)]$.

139; -7.
Replace:
its quotient field
by:
$k[x_1, \ldots, x_n]$

139; -6.
Replace:
a.
by:
b.

140; 3.
Replace:
b.
by:
c.

140; 5–10.
Delete:
the whole of part d.

140; 12.
After

{ insert:
(  

149; -20.
After
ideal
insert:
such
Figure 5.2, first line under the left-hand picture.

Replace:
\[ (y^2) \]
by:
\[ (y^2) \]

Replace:
\[ a \neq 0 \]
by:
\[ 0 \neq a \]

Replace:
equation
by:
expression

Replace:
\[ 5/32 \]
by:
\[ 5/128 \]

Replace:
e_j
by:
\[ \sum_{j \neq i} e_j \]

After
\[ = 0 \]
insert:
for each \( j \neq i \)

Replace:
\[ m = e_j(n') \]
by:
\[ m = \sum_{j \neq i} e_j(n'_j) \]

Replace:
n_j \in M
by:
n'_j \in M

Replace:
e_j(m) = \ldots = m
by:
\[ \sum_{j \neq i} e_j(m) = \sum_{j \neq i} e_j(\sum_{j \neq i} e_j(n'_j)) = \sum_{j \neq i} e_j(n'_j) = m \]
Replace:
\[ e_j(M) \]
by:
\[ \sum_{j \neq i} e_j(M) \]

Delete:
\[ [x] ((three occurences)) \]

After (commutative)
insert:
local

Replace:
\[ \tilde{e}_1 \]
by:
\[ e_1 \]

Also, the hypothesis “local” is unnecessary: see Proposition 7.10.

Replace:
\[ ((the \ first \ subscript)) \ j \]
by:
\[ ((the \ subscript)) \ n \]

Replace:
\[ m \]
by:
\[ ((fraktur)) \ m \]

Replace:
\[ 1 + x \]
by:
\[ 1 - x \]

Replace:
\[ 1 + a \]
by:
\[ 1 - a \]
195; 19.
Replace:
\[ 1 - a + a^2 - \ldots \]
by:
\[ 1 + a + a^2 \ldots \]

195; 20.
Replace:
\[ 1 + a \]
by:
\[ 1 - a \]

195; 21.
Replace:
\((\text{the display})\)
by:
\[ (1 - a) + (1 - a)a + (1 - a)a^2 \ldots \]

195; 22.
Replace:
\[ 1 + a^i \]
by:
\[ 1 - a^i \]

200; -15.
After
for each \( i \)
insert:
and taking convergent sequences to convergent sequences

201; 17.
Replace:
\[ )^{i+j} \]
by:
\[ )^{i+j-1} \]

203; 19.
Replace:
\[ \text{A1.3c} \]
by:
\[ \text{A1.4c} \]

204; 9.
Delete:
\[ \tilde{K} \subset \]

204; 14.
Replace:
\[ \tilde{a} \in \ldots = \tilde{K} \]
by:
\[ \tilde{a} \in R \]
Replace:
\[ \tilde{K} = \varphi(K) \]
by:
\[ \tilde{K} \subseteq \varphi(K) \]

Replace:
((entire lines 19-20))
by:
so \( \varphi \) is a homomorphism and \( \varphi(K) \) is a coefficient field containing \( \tilde{K} \). The previous paragraph shows that \( \varphi(K) = \tilde{K} \)

Before
Since
insert:
We may assume that \( \tilde{u}_w' \) and \( \tilde{r}_w \) are nonzero.

Replace:
\[ k^q \]
by:
\[ k \]

Replace:
1.15c
by:
1.15b

Replace:
Equivalently, it
by:
Equivalently, it

Replace:
dimenion
by:
dimension

Delete:
and using Nakayama’s lemma,

Replace:
parameter ideal
by:
ideal of finite colength on

The \( X \) at the upper right should be \( Y \); the \( Y \) at the lower right should be \( X \)
Replace: \( R_P/PR_P \) by: \( R/P \)

Replace: \( R_P \) by: \( R \) ((three occurrences))

Replace: the maximal ideal is generated by \( x \) by: the maximal ideal is generated by \( y \)

Replace: \( k[x]_{(x)} \) by: \( k[y]_{(y)} \)

Replace: \( k(x) \) by: \( k(y) \)

Replace: dimension by: dimension

Replace: \( ar = bs \) by: \( r^n \in (s) \)

Replace: a zerodivisor...of \( s \) by: nilpotent modulo \( (s) \) and is contained in the minimal primes of \( (s) \).

Replace: this by: each
Replace:
associated
by:
minimal

Delete:
the end of proof sign at the end of the line

Replace:
Continuing
by:
To complete

Delete:
next

Insert:
the end of proof sign at the end of the line

Replace:
$R$
by:
$R_P$ ((two occurrences))

Replace:
Since $\ldots = 0$
by:
Since $\ker(\varphi_i)P \otimes R_P\varphi_i$ maps to $(\varphi_i)_P\ker(\varphi_i)_P = 0$

After
$K(R)$
insert:
modulo the units of $R$

Replace:
so it
by:
. We have $Ru = Rv$ iff $u$ and $v$ differ by a unit of $R$, so we may identify the group of principal divisors, under multiplication, with the group $K(R)^*/R^*$. If $I$ is any invertible divisor and $Ru$ is a principal divisor, then $(Ru)I = uI$. Thus it

Replace:
Suppose $\ldots$ ((whole sentence))
by:
Suppose that $q \subset R$ is an idea of finite colength on $M$. (($q$ should be fraktur))
276; -1.
Replace:
\[ M/x_1, M \ ((\text{part of the subscript in the middle}) \]
by:
\[ M/x_1M \ ((\text{that is, delete the comma}) \]

Replace:
\[ \text{parameter ideal} \]
by:
\[ \text{ideal of finite colength on} \]

277; -11.
Replace:
\[ \text{where...with} \]
by:
\[ \text{where the polynomial } F \text{ has} \]

277; -11.
Replace:
\[ \text{whose degree is} \]
by:
\[ \text{degree} \]

278; 2.
Replace:
\[ ((\text{comma at the end of the display}) \]
by:
\[ ((\text{period}) \]

278; 3.4.
Replace:
\[ ((\text{the entire two lines}) \]
by:
\[ \text{The equality shows that } F \text{ has positive leading term, while the inequality gives the desired degree bound.} \]

282; 12.
Replace:
\[ (n) ((\text{second occurrence only!!}) \]
by:
\[ (i) \]

287; -3.
Replace:
\[ \text{In fact, if} \]
by:
\[ \text{If} \]

288; 2.
Replace:
\[ A \]
by:
\[ R \]
Replace:

\[ x'_1 - a_1 x'_e, \ldots, x'_{e-1} - a_{e-1} x'_e \]  
\((\text{beginning of the displayed list})\)

by:

\[ x''_1, \ldots, x''_{e-1} \]

291; -21.

After

a field

insert:

, \( R \) is generated by \( R_0 \) over \( R_1 \),

291; -10.

After

is a field

insert:

and \( Q_0 = 0 \)

291; -7.

Delete:

\( Q_0 \oplus \)

296; -3.

Replace:

Let

by:

If \( f \) is a unit the assertion is obvious. Otherwise, let

298; 2,3.

Replace:

\( L \)

by:

\( L' \)  
\((\text{two occurences})\)

301; 17.

Replace:

Theorem 13.7

by:

Theorem 13.17

303; 8,9,10.

Replace:

\( S_I \)

by:

\( B_I \)  
\((\text{Three occurences})\)

303; -1.

Before

\((\text{the period})\)

insert:

with equality if \( R \) is universally catenary
Replace: ((the first paragraph))
by:
We will prove Theorem 4.1 as the special case $e = 0$ of Corollary 14.9 to the much stronger Theorem 14.8. For a direct proof see Exercise 14.1.

Insert:
In general, a morphism $\varphi : Y \to X$ of algebraic varieties is called \textit{projective} if $\varphi$ can be factored as $Y \to X \times \mathbb{P}^n \to X$ with the first map a closed embedding and the second map the projection. In these geometric terms, Theorem 14.1 says that a projective morphism is \textit{closed} in the sense that it takes closed sets onto closed sets.

Replace: kernal
by:
kernel

Replace: Andre
by:
André

Insert:
Let us restate Theorem 14.8 (or rather its consequence for reduced affine algebras over an algebraically closed field) in geometric terms: Suppose that $R \to S$ corresponds to a morphism of varieties $\varphi : Y \to X$. Set $F_e = \{ x \in X \mid \dim \varphi^{-1}(x) \geq e \}$ and let $G_e$ be the set of all points of $y$ so that the fiber $\varphi^{-1}(\varphi(y))$ has dimension $\geq e$ locally at $y$. That is, $G_e$ is the union of the large components of the preimages of points of $F_e$. Theorem 14.8 says that $G_e$ is defined by the ideal $I_e$ and is thus closed. If the morphism $\varphi$ is projective then $F_e$ is defined by $J_e$, and is closed as well. Note that $F_e$ is the image of $G_e$, so we could deduce part b of Theorem 14.8 from part a together with Theorem 14.1—if it weren’t that we will only prove Theorem 14.1 by using part b.

Replace: principal
by:
principle

Replace: ((the boldace type))
by:
((roman type))

After ((end of line))
insert:
((an “end of proof” sign))
Replace: with basis $F$

by:

$F$ with basis

Replace: irreducible

by:

irreductible

Delete: refines the order by total degree and

Replace: Equivalently, as the reader may check, a

by:

A

Replace: is ((last word))

by:

may be

Delete: either...same and

Replace: $x =

by:

$X =

Replace: an algebra map

by:

a surjective algebra map

Replace: Let

by:

Suppose that $R$ contains a field of characteristic 0, and let

After field insert:

of characteristic 0
430; 4.
Replace:
\[ M \]
by:
\[ M \neq 0 \]

430; 5.
Replace:
\[ \text{some } k \]
by:
\[ \text{some } k < n \]

434; 12.
Replace:
\[ \text{mapping cylinder} \]
by:
\[ \text{mapping cone} \]

434; 19.
Replace:
\[ \text{mapping cylinder} \]
by:
\[ \text{mapping cone} \]

436; 3.
Replace:
\[ x_r \]
by:
\[ x_n \]

436; 3.
Replace:
\[ \neq \]
by:
\[ \neq 0 \]

436; 4.
Replace:
\[ x_r \]
by:
\[ x_n \]

436; 4.
Replace:
\[ 17.4 \]
by:
\[ 17.14 \]

437; 8.
Replace:
\[ m \otimes 1 - 1 \otimes m \]
by:
\[ m \otimes 1 + 1 \otimes m \]
The two arrows labeled with $\beta$ should point downwards.

Replace:

$K(x^*)$

by:

$K'(x^*)$

Replace:

$H_{n-k}(K(x), \delta_{x^*})$

by:

$H_{n-k}(K'(x^*), \delta_{x^*})$

Replace:

$S/(x_1, \ldots, x_r)$

by:

$S/(y_1, \ldots, y_r)$

Replace:

$e_j$

by:

$e_J$

Replace:

3.16

by:

13.16

The $\sigma$ should be situated on the final arrow.

Delete:

Let $R$ be a Cohen-Macaulay ring.

Replace:

11.12

by:

11.10

Replace:

$S_1'$

by:

$S_1$

Replace:

7.17

by:

7.7

471; 10.
Replace: a domain iff $r \geq 3$
by: a normal domain iff $r \geq 3$

471; 10.
Delete: normal iff $r \geq 4$

473.
Before the first line of text ((as on p. 423)) insert:

In this chapter all the rings considered are assumed to be Noetherian

476; 2
Replace: $R$-module
by: module over a regular local ring of dimension $n$

477; 11.
Replace: $PF_n$
by: $PF_{n-1}$

477; 11.
Replace: $i$
by: $i \geq 0$

478; -11.
Replace: Corollary 15.13
by: Corollary 15.11

478; -10.
Replace: Corollary 19.6
by: Corollary 19.7
We begin with a simple observation:

Replace:

It turns...remark.

by:

We begin with a simple observation:

Replace:

((the end of proof symbol at the end of the line))

Delete:

Replace:

(R_P)

by:

R[x^{-1}]_P

Insert:

((an end of proof symbol at the end of the line))

Replace:

\dim_k(M_d)

by:

\dim_k(M_d)t^d

Before

the homogeneous

insert:

which is

Replace:

polynomial

by:

family of polynomials \( c_t(M) \)

Delete:

Chern and

Replace:

((the whole last paragraph))

by:

Knowing the Hilbert polynomial of a module \( M \) is equivalent to knowing the Chern polynomial \( c_t(M) = 1 + c_1(M)t + c_2(M)t^2 + \ldots \mod t^{n+1} \) and the rank of \( M \). We sketch this equivalence: The Hirzebruch-Riemann-Roch formula allows one to deduce the Hilbert polynomial from the Chern classes and the rank as follows: First form the Chern character, which is a power series of the form \( \text{rank}(M) + c_1(M)t + \frac{1}{2}(c_1(M)^2 - 2c_2(M))t^2 + \ldots \mod t^{n+1} \). The Hilbert polynomial \( P_M(d) \) is equal, for large \( d \), to the coefficient of \( t^n \) in the expression

\[
\exp(t \frac{t}{1-e^{-t}}) \text{ch}(M).
\]
See Hartshorne [1977] Appendix A4, or Fulton [1984], especially chapter 15. Conversely, to compute the Chern polynomial from the Hilbert polynomial, consider first the special case \( M = S_j := S/(x_1, \ldots, x_j) \). From the Koszul complex resolving \( M \) and properties i and ii above we see

\[
c_t(S_j) = \frac{\prod_{i \text{ even}} (1 - it)^{\binom{n-j}{i}}}{\prod_{i \text{ odd}} (1 - it)^{\binom{n-j}{i}}} \mod t^{n+1}.
\]

Now any Hilbert polynomial can be written (uniquely) in the form \( P_M = \sum_{j \geq 0} a_j P_{S_j} \). It follows that the Chern polynomial of \( M \) is \( c_t(M) = \prod_{j \geq 0} a_j c_t(S_j) \). Of course the rank of \( M \) is \( a_0 \), completing the argument.

---

493.

Before the first line of text ((as on p. 423)) insert:

\[\text{In this chapter all the rings considered are assumed to be Noetherian}\]

497; -15.

Delete:

\((\text{the end of proof symbol at the end of the line})\)

497; -4.

Replace:

\( I_j \varphi = I_{j+p} \varphi \)

by:

\( I_j \varphi = I_{j+p} \psi \)

502; -3.

Delete:

\((\text{the end of proof symbol at the end of the line})\)

506; -14.

After is exact, insert:

\( F_2 \) is free,

506; -10.

Replace:

\( I(\varphi_2) \)

by:

\( I_{n-1}(\varphi_2) \)

510; -7.

Replace:

\( \text{Ext}^j(M, R)_n \)

by:

\( \text{Ext}^j(M, S)_n \)

521; -12.

Replace:

\((\text{the entire line})\)

by:

\( \text{Ext}^j(M, S)_k = 0 \) for all \( j \leq n-1 \) and \( k = -m - j - 1 \).
Replace: By Proposition 9.2 by: By hypothesis

Before whose insert:

\[ \varphi \]

After Zariski insert:

Gorenstein rings were defined—in exactly the way done in this book!—in the artinian and graded cases by Macaulay in his last paper [1934] (his definition in the affine case differs slightly from the modern one).

After attests. insert:

There is also a well-developed noncommutative theory (Frobenius and quasi-Frobenius rings.)

Replace: Proposition 21.2 by: Corollary 21.3

After \( x_i \) insert:

\[ x_i^{-1} \]

Replace: the \( S \)-module \( T \) by:

\[ T \] with a sub-\( S \)-module of \( K(S)/L \)

After generated insert:

\[ \text{nonzero} \]

Replace: := by: =
After any nonzero finitely generated

(Proof: One checks by linear algebra that these elements generate the part of the annihilator in degrees \( \leq 2 \), even as a vector space. These elements generate all forms of degree \( \geq 3 \).)

After \( x \in A \)
that is also a nonzerodivisor on \( \omega_A \)

Note that c implies that the annihilator of \( W \) is 0, just as in the special case of Prop. 21.3

Replace: \( .. \)
by: \(. \) ((after the Proposition number))

Replace: \( x \)
by:
\( x \in R \)

Replace: \( M/xM \)
by:

Replace: \( x_0, x_1 \)
by:
\( x_1, x_2 \)
Replace:

Enzyklopädie

by:

Enzyklopädie

Replace:

\( A^n \)

by:

\( A^{n+1} \)

After

such that

insert:

\( x \) is a nonzerodivisor on \( W \) and

Replace:

\( \omega_R \)

by:

\( R \)

After

and

insert:

, with the notation introduced just after Proposition 21.5,

Replace:

\[
\sum_{i_1, \ldots, i_r \geq 0}
\]

by:

\[
\sum_{i_1, \ldots, i_r}
\]

((two occurrences))

Delete:

((this entire line))
Replace:
  degree
by:
  \( \deg \) (two occurrences)

Replace:
  \( x_1 \)
by:
  \( x_0 \)

Replace:
  \( \sum d_i - r \)
by:
  \( \sum d_i - r - 1 \)

((These two paragraphs are both definitions, and should be set in italics, with a skip below the paragraph, just as with the first paragraph on this page.))

Before module insert:
  of rank \( n \)

Replace:
  \( \chi^d \)
by:
  \( \chi^{n-d} \)

Replace:
  corollary
by:
  theorem

Replace:
  Corollary
by:
  Theorem

Replace:
  a variety
by:
  an affine variety
Replace:  
both $E$  
by:  
both $E'$

Replace:  
b.  
by:  
b.

Replace:  
c.  
by:  
c.*

Delete:  
$0 \rightarrow$

Replace:  
$E^1(A,B)$  
by:  
$E^1_R(A,B)$

Replace:  
$0 : 0 \rightarrow A \rightarrow A \oplus B \rightarrow B \rightarrow 0$  
by:  
$0 : 0 \rightarrow B \rightarrow A \oplus B \rightarrow A \rightarrow 0$

Replace:  
A.  
by:  
B.

Replace:  
$A, B$  
by:  
$B, A$

Replace:  
$A, B$  
by:  
$B, A$
Replace:

\[ A, B \]

by:

\[ B, A \]

Replace:

an injective

by:

a projective

Replace:

a projective

by:

an injective

Replace:

\[ A \]

by:

\[ C \]

Replace:

\[ C \]

by:

\[ A \]

Replace:

\[ C \]

by:

\[ A \]

Replace:

\[ A \]

by:

\[ C \]

Replace:

\[ F \to G \]

by:

\[ G \to F \]

Replace:

\[ F \]

by:

\[ A \] (three occurrences)
Delete:

\[ \bar{F} \]

Replace:

\[ F \]

by:

\[ A \]

Replace:

\[ F \]

by:

\[ A \ (\text{two occurences}) \]

Replace:

We consider

by:

Let \( A = \bigoplus_{p \in \mathbb{Z}} G^p \), and let \( \alpha : A \to A \) be the map defined by the inclusions \( G^{p+1} \subset G^p \). We consider

Replace:

\[ H(G) \]

by:

\[ H(A) \]

Replace:

\[ H(G/\alpha G) \]

by:

\[ H(A/\alpha A) \]

Replace:

\[ G \]

by:

\[ A \ (\text{four occurences}) \]

Replace:

horizontal

by:

vertical

After

\[ G^q \]

insert:

\[ = \bigoplus_{i+j=q, j \geq p} F^{i,j} \]
674; 10. After then in insert:

$$(G^{p+1})^{P+r}$$

674; 11. ((delete the display, and close up))

688; 11. Replace:

$$G \circ P \to LF \circ P \to F$$

by:

$$G \circ P \to LF \circ P \to P \circ KF$$

694; -10. Replace:

$$R$$-module

by:

$$S$$-module

694; -9. Replace:

$$R$$

by:

$$S$$

694; -8. Replace two occurrences of $$R$$ by $$S$$. That is,

Replace:

$$\text{Hom}_R(- - -, E(R/P))$$

by:

$$\text{Hom}_S(- - -, E(S/P))$$

697; 5. Replace:

collections

by:

collection

728; -9. Delete:

(by Lemma 3.3)

728; -9. Replace:

$$\in R_i$$

by:

$$\in R$$

743; 16. Replace:

b.

by:

c.
It follows from local duality that if $S = k[x_0, \ldots, x_n]$ is the homogeneous coordinate ring of $\mathbb{P}^n$, then

$$H^j(\mathbb{P}^n; F(m-j))^\vee \cong \text{Ext}^{n-j}(M, S)_{-n-1-(m-j)}$$

for all $j$. This gives a. If $M$ has depth $\geq 2$ we have $\text{Ext}^{n-j}(M, S) = 0$ for $j \leq 0$ and statement b becomes a direct translation of Proposition 20.16 and Theorem 20.17.
758; -18.
Replace:
Preprint.
by:

759; 9–13.
Replace:
total reference
by:

759; 22.
Replace:
Algébre
by:
Algébre

759; 28.
Replace:
Algébre
by:
Algébre

759; -15.
Insert:
93 (1994) 211–229. ((at end of line))

760; 6.
Insert:

760; -8.
Replace:
1944
by:
1943

761; -9.
Replace:
Schöpf
by:
Schöpf

762; 6.
Replace:
in the
by:
is the
Replace:

(in press).
by:


Replace:

the whole Gelfand-Manin reference
by:


Replace:

Les foncteurs ... continu ((the whole title))
by:

Catégories dérivées et foncteurs dérivés

Replace:

point
by:

points

Replace:

Der Frage
by:

Die Frage

Replace:

((boldface type))
by:

((roman))

Replace:

Time
by:

Times

Replace:

van
by:

von

Replace:

Birkhauser
by:

Birkhäuser
769 Insert as a new reference.
Insert:

770; -14.
Replace:
van
by:
von

770; -12
Replace:
in press
by:
1996

771; 7.
Replace:
Rabinowitch
by:
Rabinowitsch

772; -12.
Replace:
Bemerking
by:
Bemerkung

772; -12.
Replace:
van
by:
von

773; -18.
Replace:
Uber
by:
Über

773; -16.
Replace:
Bezout
by:
Bézout

773; -2.
Replace:
Its
by:
its
Replace: 1994 by: 1995


Insert: \( \kappa(P) \), residue field, 60

Insert: \( E(M) \), injective envelope, 628

Replace: 18 by: 17

Replace: Kozul by: Koszul


Replace: 167 by: 308,316