Correction to: The characteristic cycle and the singular support of a constructible sheaf

Takeshi Saito¹

Published online: 3 April 2019

© Springer-Verlag GmbH Germany, part of Springer Nature 2019

Correction to: Invent. math. (2017) 207:597–695

<https://doi.org/10.1007/s00222-016-0675-3>

The first part of Proposition 7.4 and its proof in pp. 670–671 should be corrected as follows. The author apologizes for the mistake.

Proposition 7.4 (Beilinson) *Let $\mathbf{P} = \mathbf{P}^n$ be a projective space, and let $\mathbf{P}^\vee$ be the dual projective space. Let $\mathcal{G}$ be a constructible complex of Λ -modules on $\mathbf{P}^\vee$, and let $\mathcal{F}$ denote the naive inverse Radon transform $Rp_*p^{\vee*}\mathcal{G}$. Let $C^\vee \subset T^*\mathbf{P}^\vee$ be a closed conical subset such that every irreducible component is of dimension n , and let $C = p_\circ p^{\vee\circ}C^\vee \subset T^*\mathbf{P}$. Assume that $\mathcal{G}$ is micro-supported on $C^\vee \subset T^*\mathbf{P}^\vee$.*

Let X be a smooth subscheme of $\mathbf{P}$, and assume that the immersion $h: X \rightarrow \mathbf{P}$ is properly C -transversal. Using the notation in (3.10), let $p: X \times_{\mathbf{P}} Q \rightarrow X$ be the projection and $p^\vee: X \times_{\mathbf{P}} Q \rightarrow \mathbf{P}^\vee$ be the restriction of $p^\vee$.

1. *We have*

$$\mathbf{P}(CCRp_*p^{\vee*}\mathcal{G}) = \mathbf{P}(p_!CCp^{\vee*}\mathcal{G}) = \mathbf{P}(p_!p^{\vee!}CC\mathcal{G}). \quad (7.4)$$

The original article can be found online at <https://doi.org/10.1007/s00222-016-0675-3>.

✉ Takeshi Saito
t-saito@ms.u-tokyo.ac.jp

¹ Department of Mathematical Sciences, University of Tokyo, Tokyo 153-8914, Japan

In particular, for $X = \mathbf{P}$, we have

$$\mathbf{P}(CC\mathcal{F}) = \mathbf{P}(p_!CCp^{\vee*}\mathcal{G}) = \mathbf{P}(p_!p^{\vee!}CC\mathcal{G}). \quad (7.2)$$

2. We have

$$CC h^*\mathcal{F} = h^!CC\mathcal{F}. \quad (7.3)$$

Proof 1. First, we prove the second equality in (7.4) for properly C -transversal immersion $h: X \rightarrow \mathbf{P}$. By Corollary 3.13.2, $p^\vee: X \times_{\mathbf{P}} Q \rightarrow \mathbf{P}^\vee$ is $C^\vee$ -transversal and hence $p^*\mathcal{G}$ is micro-supported on $p^{\vee\circ}C^\vee$. Since $p^\vee: X \times_{\mathbf{P}} Q \rightarrow \mathbf{P}^\vee$ is smooth outside $\Delta_X \subset X \times_{\mathbf{P}} Q$ (3.11), we have $CCp^{\vee*}\mathcal{G} = p^{\vee!}CC\mathcal{G}$ outside $\Delta_X \subset X \times_{\mathbf{P}} Q$ by Proposition 5.17. By the assumption that $h: X \rightarrow \mathbf{P}$ is C -transversal, the pair $(p^\vee, p)$ is $C^\vee$ -transversal on a neighborhood of $\Delta_X \subset X \times_{\mathbf{P}} Q$ by Corollary 3.13.1 (1) $\Rightarrow$ (2). Hence, we have the second equality in (7.4).

We prove the first equality in (7.4). We may assume that $k \cdots$

(We keep from the 3rd line of p. 671 to the displayed formula as it is.)

$$\phi_u(Rp_*p^{\vee*}\mathcal{G}, f) \rightarrow R\Gamma(Q \times_X u, \phi(p^{\vee*}\mathcal{G}, fp)) \rightarrow \bigoplus_v \phi_v(p^{\vee*}\mathcal{G}, fp).$$

For equalities (7.2), it suffices to take $X = \mathbf{P}$.

(From the beginning of the proof of 2. on, no change is necessary.) □

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.