

Excise1.[Hartshorne,chapter2,ex.1.16,(b),(c)]

1. If  $0 \rightarrow \mathcal{F}' \rightarrow \mathcal{F} \rightarrow \mathcal{F}'' \rightarrow 0$  is an exact sequence of sheaves over a topological space  $X$ , and if  $\mathcal{F}'$  is flasque, then for any open set  $U$ , the sequence  $0 \rightarrow \mathcal{F}'(U) \rightarrow \mathcal{F}(U) \rightarrow \mathcal{F}''(U) \rightarrow 0$  of Abelian groups is also exact.
2. If  $0 \rightarrow \mathcal{F}' \rightarrow \mathcal{F} \rightarrow \mathcal{F}'' \rightarrow 0$  is an exact sequence of sheaves over a topological space  $X$ , and  $\mathcal{F}', \mathcal{F}''$  are both flasque, then  $\mathcal{F}$  is also flasque.

Excise2.[Hartshorne,chapter3,ex.2.1,(a)]

1. Let  $X = \mathbb{A}_k^1$  be the affine line over an infinite field  $k$ . Let  $P, Q$  be distinct closed points of  $X$ , and let  $U = X - P - Q$ . Show that  $H^1(X, \mathbb{Z}_U) \neq 0$