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Alejandro Mario Meson* (meson@iflysisib.unlp.edu.ar), 59 nro 789, La Plata, B. Aires, Argentina, and **Fernando Vericat**, 59 nro 789, La Plata, B. Aires, Argentina. *On the topological entropy of the irregular part of the V -statistics multifractal spectra.*

We study the irregular part of the multifractal decomposition of V -statistics of order r . Let us consider a topological dynamical system (X, f) , with X a compact metric space and f a continuous map. Let $X^r = X \times \dots \times X$ be the product of r -copies of X with $r \geq 1$, if $\Phi : X^r \rightarrow \mathbf{R}$ is a continuous map, then let

$$V_{\Phi}(n, x) = \frac{1}{n^r} \sum_{1 \leq i_1, \dots, i_r \leq n} \Phi(f^{i_1}(x), \dots, f^{i_r}(x)).$$

These averages are called the V -statistics of order r with kernel Φ . The multifractal spectra of V -statistics are specified by the decomposition sets

$$E_{\Phi}(\alpha) = \left\{ x : \lim_{n \rightarrow \infty} V_{\Phi}(n, x) = \alpha \right\}.$$

The *irregular part* E_{Φ}^{∞} of the spectrum is the set of points x for which $\lim_{n \rightarrow \infty} V_{\Phi}(n, x)$ does not exist. We prove that the irregular part E_{Φ}^{∞} has the same entropy than the whole space. (Received May 03, 2013)