On duality of aggregation operators  Juan Fernández-Sánchez$^1$,  
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In [2] a duality relation is studied for pairs of classes of binary operations in the unit interval $I = [0, 1]$, involving members of a class of aggregation functions which satisfy certain boundary conditions. Specifically, from the solution of a functional equation system related to the De Rham system, it is established that for any $F$ in the above class two unique aggregation functions $G$ and $N_{k,k'}$ exist, so that the pair $(F,G)$ is $N_{k,k'}$-dual.

In this talk we concern ourselves with an explicit expression of function $N_{k,k'}$, and we study interesting properties for this function. The key tool to obtain the proof of the rest of properties, is stated as follows:

**Theorem 1** For $k, k' \in [0,1[, N_{k,k'} : I \to I$ is given as follows: if

$$x = k^s_0 \cdot \cdots \cdot k^s_0 (1 - k)^{s_0 + 1} \cdot \cdots \cdot k^s_1 (1 - k)^{s_1 + 1} \cdot \cdots$$

$$+ k^s_d (1 - k)^{s_d + 1} \cdot \cdots \cdot + k^s_1 (1 - k)^{s_1 + 1} \cdot \cdots \cdot$$

then

$$N_{k,k'}(x) = k' + k' (1 - k') \cdot \cdots \cdot k' (1 - k')^{t_0 - 2} +$$

$$+ k'^{s_0 + 2} (1 - k')^{t_0 - 1} + \cdots + k'^{s_0 + 2} (1 - k')^{t_1 - 2} +$$

$$+ k'^{s_1 + 2} (1 - k')^{t_1 - 1} + \cdots + k'^{s_1 + 2} (1 - k')^{t_2 - 2} +$$

$$+ k'^{s_d + 2} (1 - k')^{t_{d-1} - 2} + \cdots + k'^{s_d + 2} (1 - k')^{t_{d-1} - 2} + \cdots$$

Keywords. De Rham system; singular function; aggregation operator; generalized dyadic representation system; $k$-negation; fractal dimension

References
