Allen, P. J.; Neggers, J.; Kim, Hee Sik  
*Fuzzy algebras and directions.* (English) [Zbl 1104.03050]  

Given a set $S$, a direction $D = (G, L, P)$ on $S$ is a triple of functions $G, L, P : S \times S \to [0, 1]$, where $G$ represents the ‘greater than’ function, $L$ represents the ‘less than’ function, while $P$ represents the ‘parallel’ or ‘incomparability’ function. The authors introduce the notions of $P$-proper binary operations, fuzzy coalgebras (directions) and (direction) order, and compare the latter to the order on BCK-algebras associated with these structures, among other results.

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**MSC:**

- 03E72 Theory of fuzzy sets, etc.
- 06F35 BCK-algebras, BCI-algebras
- 08A72 Fuzzy algebraic structures

**Keywords:**

fuzzy subalgebra; fuzzy coalgebra; BCK-algebra