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## Brief

## When fair share is not equal

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This paper deals with allocation of resources which is a central concept in sustainable development. It covers both values and ethical reasoning, such as what is considered fair in different situations, and mathematical reasoning, in particular division. Previous research studies on preschool children indicate that even though children prefer equal distribution, which is division in mathematical terms, culture and context do have impact. But little is known about what different reasoning can look like, and how mathematical reasoning and ethical reasoning could support or compete with each other. Therefore, the focus here is on preschool children's collective reasoning about sharing, when mathematical reasoning is used, replaced or complemented by ethical reasoning. Two children, age 4 and 6, solved six cases together. The cases described different dilemmas involving some soft toys and a number of biscuits. In some cases, the different teddy bears had different wishes and needs. Data was analysed using two frameworks. The first analysis focus on collective mathematical reasoning, especially the different components, mathematical properties, of the arguments. The other framework covers the process of how ethical reasoning was created. The results show that in basic situations, the children often used division in equal shares. When different needs were explicit, which could involve values, the children made strategies that were related to ethical reasoning. There was also an overlap, where mathematical arguments were used to back up ethical reasoning, a discovery that is a contribution to the research field. One implication from the results is that sharing can be different from division which means that when discussing sharing in preschool, equal shares should not be assumed. Also, the children showed reasoning competence both regarding ethical reasoning and

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mathematical reasoning, indicating that teachers and teacher educators need to be aware of the potential that children already possess. The question is how we construct situations for children to demonstrate these and further develop them.

Keywords: collective mathematical reasoning; division; ethical reasoning; sharing