```
Enumeration (T): trait
  % Enumeration, comparison, and ordinal position
  % operators, often used with "enumeration of"
  assumes Integer
  includes DerivedOrders
  introduces
    first, last: → T
    succ, pred: T → T
    ord: T → Int
    val: Int → T
  asserts
    T generated by first, succ
    T generated by last, pred
    ∀ x, y: T
      ord(first) == 0;
      x ≠ last ⇒ ord(succ(x)) = ord(x) + 1;
      x ≠ last ⇒ pred(succ(x)) = x;
      val(ord(x)) == x;
      x ≤ y == ord(x) ≤ ord(y);
      x ≤ last
  implies
    TotalOrder
    T generated by val
    T partitioned by ord
    ∀ x: T
      x ≠ first ⇒ succ(pred(x)) = x;
      x ≠ last ⇒ x < succ(x);
      first ≤ x;
      ord(x) ≥ 0
    converts
      first:→T, succ:T→T, pred:T→T, ord,
        ≤:T,T→Bool, ≥:T,T→Bool,
        <:T,T→Bool, >:T,T→Bool
      exempting succ(last), pred(first)
```