

The diagram illustrates a Transformer-based neural network architecture for word classification. The process starts with an input of "文章の単語 I 例 256(word)". This input is processed by an "Embedder" block, which outputs a dimension of  $256 \times 300$  (word  $\times$  dim). The output is then passed to a "PositionalEncoder" block, which also outputs  $256 \times 300$  (word  $\times$  dim). The output of the PositionalEncoder is fed into a sequence of "TransformerBlock"s. The first TransformerBlock outputs  $256 \times 300$  (word  $\times$  dim), and the second TransformerBlock also outputs  $256 \times 300$  (word  $\times$  dim). The output of the second TransformerBlock is then passed to a "ClassificationHeader" block, which outputs  $256 \times 300$  (word  $\times$  dim). The final output is "クラス分類 (ネガティブ, ポジティブ)".

Annotations and callouts provide additional context:

- Embedder:** "単語IDを分散ベクトルに変換" (Convert word IDs into distributed vectors).
- PositionalEncoder:** "位置情報を足すこむ。位置情報：何番目の単語か？、単語の文選ベクトルの何時目目か？を示す情報" (Add positional information. Positional information: What is the index of the word? Information indicating the index of the word in the selected sentence vector).
- TransformerBlock:** "離れた単語との関連性を考慮した特徴量に変換するself.Attentionモデル。" (A self-attention model that converts features considering the correlation with distant words).
- ClassificationHeader:** "1つの全結合層のみ" (Only one fully connected layer).

