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Rejoinder to "Commentary on the entropy of LEGO®"

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Figure 1 in the commentary (Stamps, 2012) is a puzzle only if it is supposed that entropy is an intrinsic property of an object. It isn't. In their respective catalogues window A (where it is one of four possible patterns) would have a lower entropy than the identical window B (where it is one of thirty-two possible patterns). Once installed in a building its entropy would change again depending upon how many similar windows there were in the vicinity.

The entropy of an object measures how unlikely it is with respect to a set of known alternatives. The results depend upon how these alternatives are defined. We can measure the entropy of parts of a building with respect to the building itself, as von Buttlar and Stamps do. Alternatively, we can use our peripheral vision and measure entropy with respect to a wider environment: a street perhaps or a neighbourhood. After all, where a property ends is a legal and social matter not necessarily intrinsic to the visual environment. It is not a question of one measurement being better than the other; only that they are made with respect to different possible worlds.

When Shannon measured the zeroth-order entropy of English he did it not with respect to a particular piece of text but with respect to the 8727 most common English words whose frequency had been averaged from many texts. If we likewise attempt a global measure of entropy, then we need a universal vocabulary of form which suggests the use of *Environment and Planning*-type shape grammars. Such a calculation might be very hard to perform: the advantage of LEGO® is not only is it universal but that, for a researcher no less than a child, it is easy to handle. As a by-product of all this we can appreciate how beautiful and ingenious Lego is. It has outgrown its prosaic origins and taken on a life of its own and in being able to represent fantasy scenes it is becoming poetical like a real language.

Reference

Stamps A E III, 2012, "Commentary as the entropy of LEGO®" *Environment and Planning B: Planning and Design* **39** 183 – 187