

# A Coxeter-Conway Duality<sup>1</sup>

Siobhan Roberts

I  
The following theorem gives us a very easy way of evaluating  
We call it *the simplicity theorem*  
We seem to peep through a chink in the wall of our physical limitations  
Such an escape from the turbulence of ordinary life will perhaps help to keep us sane

II  
One simple way to triangulate a polygon is by means of diagonals forming a zigzag  
What arithmetical rule (concerning multiplication and addition) is satisfied by each of these numerical patterns? *Hint*: Look at the “diamond” shapes such as

	2			5	
5		3		3	7
	7			4	

All these patterns can be shifted a certain distance to the left or the right without being changed: they are symmetrical by *translations* (or *slides*)  
Does every quiddity cycle include at least one 1?

III  
When we say someone’s “alone,” we’re really saying he’s “all one.” The word “only” means “one-like,” and mixing these ideas we get “lonely”  
“Twine” is formed by a “twist” of two strands (“twiced”) into one  
And indulging in an orgy of cancellation we obtain...  
The “projective” nature of the theorem is seen in the fact that it is a theorem of pure incidence, with no measurement of lengths or angles, and not even any reference to *order*

Siobhan Roberts  
Self-Employed  
Toronto  
Ontario  
Canada  
e-mail: sroberts@ias.edu

<sup>1</sup>A found poem, gleaned from Conway’s and Coxeter’s published work: stanza I from *On Numbers and Games* and *Regular Polytopes*; stanza II from their coauthored paper, “Triangulated Polygons and Frieze Patterns”; stanza III from *The Book of Numbers* and *Geometry Revisited*.