A Conversation with an Invisible Alien from the Planet Hex

John: Hello. I am John. Who are you?
X: I am MrFlibble, a member of the PotatoPeople. I am pleased to meet-you.
John: What is 'meet-you'?
X=MrFlibble: Meet-you is a single word meaning 'meet you' in English.
John: Ah! So you allow arbitrary hyphenation?
MrFlibble: Almost. In our PotatoPeople language, a hyphenation protocol is required.
John: What is a hypenation protocol?
MrFlibble: A hyphenation protocol decides, for a language, which hypenations are allowed.
John: Are there any rules?
MrFlibble: Essentially yes and no: each set of rules defines a language.
John: And are there any rules about rules?
MrFilbble: Yes: the decision process must be easy. That is necessary for sanity.
John: So what does 'easy' mean?
MrFlibble: Easy reduces to counting steps: I must find the answer in a short number of steps.
John: Is this number always fixed?
MrFlibble: No, it is either hard-fixed, soft-fixed, or easily calculable.
John: What does easily calculable mean?
MrFlibble: It is an inductive process. We begin with what is calculable in seven steps.
John: And what then?
MrFlibble: Then we allow bounds that can be calculated in those seven steps.
John: And what then?
MrFlibble: Then, crucially, we stop going upwards. We allow easily calculable bounds between.
John: So these between bounds are seven-step calculable?
MrFlibble: Yes, and I see you are getting the hang of hyphenation. Fun isn't it?
John: So you mean we make it up as we go along?
MrFlibble: Essentially yes, but incompatibilities are intolerable. We must not force conventions.
John: What do you mean here?
MrFlibble: May I elaborate?
John: Yes, you may, within reason.
MrFlibble: Each pair of beings defined as private Glish. This is a set of words and phrases with precisely agreed meanings between the two beings in this pair. Likewise we do the same for groups of three, five and seven. Seven allows for a group of five with an additional pair, likewise five allows for a group of three with an additional pair. Symmetry gets interesting. When we take a group of three, we have three pairs, and hence three private Glishes. Call these three Alice, Bob and Charlie. If we send a message to Charlie from Alice directly, and also via Bob, does it get through identically? It is possible that the direct route does not work, since the Alice-Charlie Glish may not contain appropriate

phrases, and it is possible that either the Alice-Bob Glish or the Bob-Charlie Glish do not exactly specify the intended meaning either. If neither is possible, then this meaning is private to Alice in the sense of this 3-group. But if Alice *tries* to force a message through, a *wrong message* will be received. This may be the best option available, if some message must-be sent. But then Charlie has to decide between the direct and indirect versions, and the decision process must be easy. Thus Charlie needs an ordered Trust-Network with a defined Pecking-Order so that Charlie need only choose the message from the one he trusts more. If Alice knows Charlie's Pecking-Order, and Alice understands Bob-Charlie Glish, Alice can know the outcome. This allows for a covert-channel: Alice can try, force a wrong-message, and know what Charlie will receive. If this deliberately wrong message influences Charlie, it may save Charlie's life. This is important. This is deception, and it is important. If Alice, Bob and Charlie trust each other as friends, the 2-way symmetry in the decision process Charlie faces given apparently equivalent messages from Alice and Bob, both purporting to be from Bob, turns a 3-cycle structure (resulting from the Pecking-Order dictating that A-B-C outranks A-C-B, or vice versa) into a 3-symmetric group. Uncertainty results from this symmetry. Given uncertainty, we can choose. Our choice removes the uncertainty, and effectively forces all who depend upon it in their decision process. If beings harness randomness for decision making, then the beings controlling the uncertainty have some effective control. Sometimes this is desirable, sometimes not. When we get to 5-groups, things get really interesting, and this comes down to the Icosahedron's symmetry group, which is equivalent to the permutations on 5 objects which are representable as a product of 3-cycles. The symmetric group of all permutations on 5 objects is representable as either those permutations representable as a product of 2-cycles (transpositions), or else as a product of an even permutation and a single optional 2-cycle. What matters is parity. With even parity, doing nothing is an option; with odd parity, some change is forced. Both are useful, but to understand it is easier to understand the even picture and then arrange things into the even permutation times optional transposition form. Critically, if we take two distinct 3-cycles, the order in which we apply them matters. This is not the case with 3-groups. What we have is an implicit parity issue: basically two icosahedrons, one red and the other yellow, and we can rotate our icosahedron and possibly change colour. Make sense?
John: I will have to think about that.