Q7. What is the typical reaction of designers to the idea that their forms can be broken into grammars? How do they feel about this possibility?

A7. When I first started out nearly 50 years ago, the reaction was automatic – "You must be crazy." But as shape grammars were shown to do more and more, the reaction changed to something defensive like this – "Well, no matter what you can see and do with shape grammars, there's a lot more to my designs than that. And there's always going to be more, much-much more. Shape grammars are limited – you misunderstand art and design, whenever you equate creative genius and method. Genius is unbounded; it exceeds all method. There's no way to describe my designs completely. I can put into them whatever I wish, and see in them whatever I choose to see." Yes, I should hope so – this is the perfect response for shape grammars, because they ensure that art and design are totally open-ended. Every one of us senses the world variably to make it meaningful in a personal way – seeing, hearing, touching, etc. now and then again in an ongoing process. Shape grammars encourage this and show how it's practicable as I calculate. That's what shape grammars are for, with schemas and rules in the embed-fuse cycle. And certainly, I would like to see more artists and designers use shape grammars in their creative work, and to teach art and design with insight and imagination in mind first and foremost. Both insight and imagination are key whenever seeing and sense experience are valued; they should be nurtured and practiced explicitly as the focus of art and design, and infused throughout STEM to keep it vital. Shape grammars open up art and design to show insight and imagination at work. It's a marvelous way to see what they do, to try them out and to use them in this way and that in any way you please – in effect, to experience genius firsthand. Grammatical anaphora can be a dangerous thing. But my ambiguous antecedents are for the most part intentional. Sometimes, it seems better to explain more reciprocally, by not trying to be completely clear – when things overlap, there's no reason to write about them distinctly. This time, it's to highlight a new kind of rule that summarizes what I've been saying –

shape grammars $\rightarrow$ insight and imagination

And the inverse of this rule may work, as well. When things involve calculating, it makes sense to take them seriously.[3]

[3] My book *Shape* is a current account of shape grammars. It's illustrated lavishly (Mine Ozkar turned my rough sketches into finished drawings – more than 1,100 of them) along with elaborate formal detail on shape algebras and like mathematics, and extensive background and history with roots in philosophy (William James's pragmatism) instead of art and literary criticism (Coleridge and Oscar Wilde). The real truth is, I'm much more relaxed with pictures and poems, etc. than I've ever been with philosophy. That's why scant of what I say in *Shape* is explicitly in my answers to questions Q1 to Q7, although it's worth comparing *Shape* and my answers for surprising overlaps – and there are many. A lot of the things I say in A1 to A7 may seem contradictory. I was careful about this in *Shape*, but few took heed. My impulsiveness now may make a difference. I tend to think of every sensible question as a Rorschach test, so there's no need to keep to what I've said before, even without contradictions. This strikes me as entirely in keeping with the true spirit of shape grammars, to see things as in themselves they really are not. I'd be remiss not to add that *Shape* fills in the details for the examples in fn 2. Also, *Shape* is an effective answer to *Algorithmic Aesthetics* (see fn 1) – seeing and other modes of sense experience are tied to schemas and rules in the embed-fuse cycle. In *Shape*, algorithms (calculating) and aesthetics both hinge on new perception. Maybe everything is a Rorschach test – or a beautiful form. *Shape* repays seeing and reading in a myriad ways –

Stiny, George. 2006. *Shape: Talking about Seeing and Doing*. Cambridge, MA: The MIT Press.

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