On the Classification of Problems in Terms of Their Solutions

Should we avoid thinking of solutions when we analyze problems?

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Introduction

I recently had an argument with a business analyst colleague of mine, which centred on some information that they had passed to me, regarding an application that I was implementing. The analyst had given me what they called a "visualisation" of a business process that they had been attempting to understand. This was an illustration of a G.U.I. form, complete with text boxes, drop-down lists and tables of data. I suggested that this, in fact, represented the means by which a user of our system would interact with it. The business analyst's reply was simple: it isn't a design.

This example illustrates something that I come across routinely in my life as a software developer. That is, the formulation of problems in terms of their possible solutions.

Making assumptions

In the example sited above, I believe that my colleague had conceptualised the problem, the business process that they were analysing, in terms of how the user might use a system. In doing this, they had made assumptions about how the problem would be solved. Importantly, they had assumed that it would be solved by providing computer software, and that this software solution would involve things like tabulations of data and ways a user could provide data to the software. They may even have thought about database entities and objects.

Classification is what we do!

I have read, in numerous articles, how analysts should not think of problems in terms of solutions. Clearly, under this jurisdiction, my colleague fails. However, I do not believe that, in its self, thinking about problems in terms of their solutions is necessarily bad. A great philosopher once said, "in order to understand the problem, you have to understand something about the solution". I believe there to be truth in this. In fact, I believe that we, as a matter of being human, formulate all problems that we come across in terms of how we might solve them.

My argument is as follows:

(a) We find it convenient to rationalise the world around us by grouping similar things together, by classifying them. Classification relieves us from the complexity of the real world, by simplifying it into manageable chunks.

(b) As a matter of being human, we not only find classification of things convenient, but automatic. In other words, classification is something we do subconsciously. It is through this that we could happily talk about a "cup", and be fairly confident that the other knows what we are talking about.

(c) As a matter of being human, we classify not only objects (like "cup"s), but also problems, notions, concepts, feelings, events, experiences and so on. Thus I can say "the water feels warm", and you know what I mean.

Classification is a process of abstraction

Conceptually, there is nothing new in recognising classification. Indeed, in computing, the classification of objects into types is the central philosophy upon which the object orientated analysis and design paradigms have grown and become so pervasive over the last 10 years or so.

However, classifications are necessarily abstract. That is, they define how similar objects are similar - they are not objects themselves. Our concept of "cup" is a concept, not an actual cup object. Indeed, many of the so-called "object orientated" programming tools that have developed out of the OO paradigm over the least 20 or so years, such as Java, are class-orientated not object-orientated. In Java, one codes Classes. Not objects.

So what's the problem?

Because our classifications are abstractions of things, and because we, as a matter of being human, classify things in different ways and at different times, we also each end up with a set of classifications that differs to the next person to a lesser or greater degree. In other words classifications are subjective, first-person, and context sensitive.

And here lies the issue. I believe that it is not the classification of problems by their solutions that is problematic for business analysts, rather that we do not adequately recognise the assumptions that we incorporate in our analysis.

When I talk of a "cup", I assume that your "cup" classification is identical to mine. In the context of commonly experienced and well established real world things, like "cup"s, the differences between my classifications and your classifications may well be so negligible as to be insignificant to the any problem in hand. However, as our experiences of things lessen, the differences in our classifications of those things are exaggerated. In the extreme, when neither of us have ever experienced the "thing", these differences become so large as to make it impossible for us to classify the thing at all, and therefore to understand the context or problem to which it relates.

Take the following example: A client has asked you to provide a means by which they can "keep contacts". When I asked a friend of mine about this scenario, their first response was "well, there's many ways that it could be done." In giving this answer they had firstly thought about possible solutions, not the problem, and secondly made assumptions about what the problem was about.

My friend may well have imagined that the client would be asking for a mechanism by which they could store details of the telephone numbers of people that they knew, so that they could dialled in future. However, this is their interpretation, their classification of the problem in terms of solutions that they knew about. I explained that, actually, the problem related to contact lenses and contact lens cases.

Finding those assumptions!

I believe that there is nothing wrong in thinking about problems in terms of their solutions. This is, in my view, just part of the natural way that humans operate, both consciously and subconsciously. However, we should not kid ourselves that this does not happen, and that somehow we shouldn't do it. I suggest that, instead, we should focus our efforts on making sure that our interpretation, our classification, of the problems we meet are as close from one

person to the next as possible. We should focus on finding our assumptions, and making them known.

I don't think that the identification of assumptions is necessarily hard. To find our assumptions, we must first recognise that we think of problems in terms of solutions. Doing this allows us to identify the solutions that we consider when analysing a problem. Finding the assumptions is then simply a matter of looking at the solutions we have in mind.