

November 20, 1967

Lecture 22

I'm going to give a very ~~very~~ short lecture today, mainly because of ignorance. The topic is getting a set of patterns out of the language which is appropriate to a given situation. Remember that in the last two lectures I took for granted that one already got a set of patterns and the question was how to order them and what sequence to use them. Now we have to come to grips with the problem of getting the right set out. Now it's rather difficult to make that problem real for you in terms of the examples that I've given so far because there are so few patterns that have been mentioned that it's obviously extremely easy to pick and chose among them by eye. Let me state again an imaginary condition where we have upwards of 10,000 or 100,000 patterns in the language and ~~where~~ where confronting a particular situation which require some quite small subset of all those patterns in order to make it more or less real in terms of examples that I have given, I want you to think about a situation - the following situation - imagine a 600 square foot country house - I mean a little sort of weekend dwelling, set in the middle of a forest on a two-acre site, with a dirt road leading to it.

I give that example because of the 26 patterns for the entrance only a very small number are relevant to that situation so that it does give you the opportunity to ask a little more realistically how would one identify the set of those 26 patterns which is relevant to that case.

The main thing that I can do for you - I can start by sketching out two things which don't really work and even those are hard to identify, and then again I'll try to indicate roughly what I think a promising approach is like. Let's first of all try - I probably shouldn't have introduced the example yet - just keep the example at the back of your mind for a minute - let's just discuss the general problem of how to get the right subset of patterns for a given situation. Now the first approach is to categorize the patterns - that is classify them - and to look within classes and subclasses and sub-sub-classes. This is of course what we do in libraries most often and its the way that most handbooks are also laid out. Like time saver

standards - laid out to ~~some~~ that extent - in that way to some extent, specifications.

What's wrong by trying to do it by categories. We could construct categories for housing, schools, roads, parks, and we could then have within these sub-categories like there might be one for weekend houses and another one for row houses and another one for very large houses. And similarly further sub-classification~~x~~. Why won't that work?

The first reason is the one I have already mentioned namely that a lot of the patterns have general applications not~~k~~ - they make much wider sense than you could fit into any one category. I mentioned I think at one time the patterns of a very general sort - what happens when you have trees well tree roots in a clay soil near a building. You endanger the foundations. And you must keep those trees at a ~~se~~certain distance from the foundations - now that doesn't apply to any particular kind of building. Similarly the kind of window detail that I was talking about obviously has much more general applications than you could find with~~x~~ any one of the categories. Now the way around that - that some of the handbooks try to use is to invent not only the broad functional categories of schools, parks, housing, stuff like that but then also to have some categories that seem to cut across these others - like foundations, walls, roofs, doors. This sort of thing is not too bad but it really ignores the fact that it's not only the patterns - its not only some of the ~~x~~ vary obviously detailed patterns, like foundation details, and window details that have this sort of broad application but in fact every single pattern that you can invent probably has an application beyond the context for which you originally conceived it.

I'll give a very quick example. I wrote a pattern recently. It has to do with housing and states that for a large variety of reasons ~~x~~ houses and dwellings in general should be constructed with extremely thick walls. These walls made of special kinds of materials which are very easy to work in such a way that people can perform a great

number of the local adaptations within the house and suit the house to their own character and idioscrantic demands. I don't want to go into the details of it. The point is that it was original conceived for a dwelling. We're now working on an office building of the same kind and it suddenly becomes clear that that conception possible in a modulated form applies to a certain extent to some of the office cases. Because in offices you also have the problem of personalizing the immediate environment of an individual - which is essentially what that pattern dealt with.

It's in that sense that the categorization of patterns breaks down altogether. Another obvious example is the house sign thing which we've discussed so many times, where again once you've stated it for the house you ~~xxxxx~~ realize that it will actually apply to certain other buildings quite different from houses. Of course you could claim that what's got to be done there is just that the context has got to be redefined all the time but you can't keep literally rewriting the patterns. Somehow the structure of the memory has got to make it possible simple by changing the hook-up - that is by changing the identification - you can make it clear that one of those patterns that was conceived for a narrow range of situations may actually apply and make sense in a wider range. That is impossible within a system of categories. The other thing against the system of categories is even more serious and that is that there are a lot of functional phenomena which ~~xx~~ really cross boundaries altogether. Some of you have probably read my article on the "City is Not a Tree" and here we have that kind of a phenomenon. For example, if you are - again I don't want to go into all the functional arguments - but there's ~~xxx~~ a lot to be said that the city immediately around a school should somehow bend toward that school in terms of ~~xxxxx~~ $\frac{1}{2}$ providing non-curricular educational experiences that the students can benefit from. That is, for instance, various commercial establishments should be organized to be able to take in students. The traffic pattern should be different so that more of the

teaching can actually go on within the fabric of the city. I'm speculating ~~wild~~ wildly here and I couldn't give exact functional ~~arg~~ arguments for those sorts of things but it does seem clear that in a properly conceived environment there is going to be more and more of this. In fact one of the things that our environment is suffering from now is over categorization. So when you have the job of building a school you do take strictly those things which have to do with a school, instead of recognizing the ~~phen~~ phenomenon your concerned ~~with~~ with reach outwards.

Within a system of strict categories this point will not be illuminated. In fact it will be impossible to conceive it. So that approach is not very promising, not likely to lead far.

Now the second kind of approach which everything which I've said so far seems to lead naturally towards is the following: Look - each one of the patterns that we've described has a context statement in it. Therefore, presumably if we can describe the situation that we are faced with - in a given building problem - then all we have to do is check it against the context statement - pit our description of the statement against the context statement - and take all those patterns - whose context statements are relevant to the situation as described? Now, the difficulty with that - superficially that seems like a good idea - it seems pretty obvious in fact - when you try to do it it becomes almost impossible for the following reasons. You never know - ~~let's~~ let's assume that you don't know what is in the language - you don't know what is in the system because it is sort of the whole point of this subject that we're discussing this morning is that among the 10,000 patterns there are ones that you don't realize apply to the situation that your interested in. So you can be assumed to know the material in advance. Now, if you don't know the material in advance the chance of your getting a description of the context or rather I should say of the situation which describes the ~~way~~ way context statements are written - which

~~xxxx~~ coincides with the way in which the context statements are written is almost nil. Like for instance, you take the street patterns which are defined as having a context among other - it was medium and low density, parts of urban areas, but those urban areas with 250 cars per 1,000 population or more. Now suppose that your suddenly your involved in designing a traffic system for some outlying part of the city which is undergoing change and the chances of your ~~xxxxxx~~ writing down the number of cars per capita is ~~xxx~~ virtually nil - your not going to write them down in advance because you don't realize that its a relevant issue with respect to that pattern. Is that point clear - are there any questions on that point? Perhaps I should give another example, that really looks ~~x~~ blank there.

I wonder if I just give another example of it. In the case of this little 600 square foot house set in the woods. Suppose ~~xxx~~ if we start trying to describe that situation. How much of the situation are we meant to describe? I have in mind now an actual site about twenty miles from here and suppose now that I'm an architect or I'm a client and I want to start making use of the pattern. I know a fantastic amount about that site. I know its a forest - I also know that its 90% pine trees. I know the climate there and I could describe the climate either very shortly or at great length. ~~xxxxx~~ is it worth mentioning the fact that this thing happens to be 3 miles from the nearest store or is that an irrelevant issue. Is it relevant that there happens to be water running across the site in great quantities or is it not relevant. Is it ~~xx~~ relevant that that dirt road that I mentioned that leads to the site goes past the house - in other words cuts across the site or that its a dead end road leading only to the house. The point is that for any situation that you are faced with you can produce a description of infinite length and you have no way of ~~xxxxxx~~ knowing in advance in your infinite description that are relevant

to the case. It so happens for instance, that one of the patterns in the entrance stuff has to do with that car port. Now its extremely doubtful whether a car port is relevant to this particular location and type of problem and we'll discuss that in a second. The fact is that because its there and because the context statement of that carport includes some reference to the climatic condition, therefore it becomes relevant to mention features of the climate. But which features? The issue as stated in the context of that pattern refers to the wind, not just to the annual rainfall or to the range of the ~~temperax~~ temperature variations so that you have to know whether or not there's much wind there.

So I think this point is clear. You can not possible hope to build up a description of the situation in advance and then just plunge into the language and get the stuff out. First of all the terms of your description are not going to connect up with the ones in the language and second, you don't know how to describe the situation which ~~x~~ features to pick. There's a third issue and that is that some of the patterns that you want will not have context that appear in your - in any kind of a conceivable description - you could give. For instance, in the street patterns, one of the sub patterns was that on this little driveway there should be bumps. Now the context for that little subpattern was a very restricted thing and had to do with cars moving across places where there were pedestrians and children and old people. It had nothing to do with the general condition, the general circumstances of ~~constructing~~ constructing the whole street pattern and yet as you probably remember from my argument that does become an essential item if you ~~pursue~~ pursue the parallel street pattern. So that that pattern also has got to come out and there is no ~~x~~ conceivable version of a description of the situation which would bring out the fact that that little drive way has to have bumps in it - that pattern - nothing is going to bring that out. Now we've been struggling with this for some time and the first kind of attack

on the problem that occurred to us was make a rough pass at the thing. In other words, try and state in very crude terms just what you're interested in - which pattern you're interested in and then ask - have the language ask you questions specific to each of the context statements in the patterns that you get at your first pass. In other words so you get patterns out and then in effect you construct a question - that is the k counterpart of the context statement and say is it the following context and then you either reject it that is send it back to the language or you ~~keep~~ keep it. That was the first pass. But that still raises the difficulty just how - even in a crude sense - how do you identify the patterns which are relevant because you still don't have a compatible language. How do you know the terms in which you describe your situation initially correspond to the ones in the language. So what we're toying with now and I think I'll try and describe it and then we can discuss - is the following kind of thing and this seems to be about right intuitively but it's hard to deal with. ~~The~~ First of all let me just describe an intuition - when you know a site you do have in mind not just a situation what you really have in mind are themselves patterns. These patterns in a slightly different sense from the way in which we've been using the word but for instance let's just call them relationships for the ~~moment~~ moment in fact. When I say look - there's this little 600 square foot house on a two-acre site in a forest and there's a dirt track going through the site - actually what happens is that we understand the kind of relationship between those items which I've just mentioned - those parts and then we ~~ask~~ ask ourselves now which of the patterns which have been stated for the house entrance are relevant to that situation. And let me draw attention to the fact now that that question is almost exactly the same as the question that we discussed a week ago about hookup. That is when a new pattern comes into the system we ask ourselves, can this pattern be used simultaneously with this pattern that's in the system. And if it can we say that two of the parts there are identified.

So what you do, very roughly speaking, is to construct - let's call it a pseudo-pattern - which is a kind of description of the situation that your faced with, or the key relationships in that relation - and then you proceed almost as though you were introducing this pattern into the language. That is you start trying to hook it up with the other patterns in the system and ask for instance, suppose I put a door here, now remember that one of the patterns says that there must be a series of breaks between the street and the door and if you remember the argument that had to do with that was the problem of getting rid of the exterior face that one puts on in an urban area, as you enter the house. I think that its from a functional point of view fairly clear that that whole business doesn't happen in the woods. There are not enough people around, not enough traffic, and general bustle. So when you go out into the woods your not forced to put ~~up~~ on this kind of a street mask and therefore functionally speaking that whole issue of getting rid of the street mask becomes entirely irrelevant in the case of a cabin set in the woods.

So that means in effect, what we have to state is that this door and this ~~x~~ street - here is a door - the door of this dwelling and this dirt ~~x~~track here. We state that that is not an instance of that and this is not an instance of that. In other words, that identification relation between parts does not ~~x~~ hold - this is not a case of that - this is not a case of that - and that's really whats telling us, I'm speaking still intuitively that is whats telling us that this pattern is not one that's relevant to this situation.

On the other hand, the pattern that calls for a slightly wider door than usual because its more comfortable to go through and because of the way that people may sometimes go through doors together and that refers purely to the width of the door the functional argument that made sense of that pattern ~~x~~holds perfectly in this situation and in that sense one would write that this door is a case of that door.

and that that identification relation holds there. In that same manner you could pick up about six of the 26 patterns that are relevant here. Also the shelf on the door is relevant. The problem of moving furniture in and out is relevant. The problem of seeing ~~h~~ and hearing in the general area outside of the front of the house is probably still relevant and that's just about all. Some version of the sign, but definitely a different version would be relevant, but that version would not be. None of the car things would be relevant, the car ~~port~~ port thing would not be relevant mainly because in this situation about 20 miles north of here the climate is good enough so that it will very rarely it simply would not be worth your while to put in a shelter for a car. Particularly in view of the fact that the way that weekend houses are used depends very much on the climate itself. In other words, you tend to go up to weekend houses in the summer, you tend to go up when it is a ~~xx~~ pleasant weekend/ So that just in the way weekend houses are used it creates a situation where the carport pattern and the shelter pattern concerning getting to and from the house just don't apply functionally speaking. So I draw attention then to the fact that this problem of getting the right pattern out of the system is really just as tricky as the problem of hooking up patterns within the system. In fact I'm not sure if it isn't exactly a similar process which should be part of the normal development of the language.

let me give a reason for that. The car port - I've been using that example - now the way it is actually written in here - the way that it was actually written in the original pattern is careless as a matter of fact - it says simply the context is parking associated with any dwelling. It's quite clear that ~~xxxx~~ because of the argument that I've given it does not apply to this case. Let's just ask how that is going to be remembered by the language as a whole. You could say look - that pattern needs to be rewritten. The context is actually narrow than was originally though

it's quite clear that for certain sorts of weekend houses your not interested in any protection of the car and that's undoubtedly true. I thing it would be quite wrong though to think that this was a mistake which one could have anticipated. The fact is its true, the weekend houses just weren't in the field of view at the time that that pattern was written. But it's a real issue as to how are those contexts gradually going to be streched and shrunk in the course of use of the language.

What would be a fairly nice solution to that wou}d be this. Suppose that this situation was actually taken into the language in some sense as a weekend house set on a two acre site in a forest. It would then and this carport pattern which talks remember about the deep facasia and everything would not be - let's just talk about the car position here - there'll be a car position on it - the fact that the car position in this situation is not identified with the car position in the statement of this pattern is not - is it self a very good indication of the face that the context for this has been shrunk. In other words if the context for this pattern were truely any car parking position associated with any dwelling it would automatically of course have to be hooked up to this pattern or this pseudo-pattern in the language. ~~And~~ And the fact that it is not is in itself to some extent doing the work of shrinking the context. So that if the language had this kind of constitution - this sort of dynamic constitution were not only patterns but where perhaps in some sense even the pseudo-patterns which refer to the situation were things were to be built, were to become part of the language this would be one way of beginning to deal with this difficulty about shrinking and stretching the context. The same thing can be done - remember I mentioned the case where both the house sign or those thick walls you suddenly realize they apply to wider cases not only to dwellings - well suppose that this thing we've always assumed that was a house and this was going to be therefore identified with other patterns were there was a house - but suppose that we now find that there

some patterns in the language which have to do with an office in a certain kind of an area and we find that we make an identification between those two because in the course of doing a job one realizes that this applies perfectly validly to this. In that sense again the whole meaning of the pattern is ~~gradually getting~~ going to start extending because of the hook up within the language changing not because of any kind of laborious process of rewriting the patterns. Now the difficulty with everything that I've said - this is of course the crushing difficulty is that in order - I already said that these hook up things can not be done pattern by pattern that's too hard - its too time consuming. A week ago I talked about the fact that it was necessary to devise short cut methods for doing this and it would have to be based on some kind of naming.

So that the only conceivable way of doing this would actually be the following. In view of the short cut methods required we do have a vocabulary of parts which is recognized as being the short dirty way to handle the memory but we have that ~~x~~ and its constantly changing and the application of these names to the various parts of different patterns is also constantly changing. That I described a week ago. Now it looks as though in order to get in to the language and solve the problem that I've posed today one would have to do this. You would have to have the whole vocabulary of names at your disposal. You would then have to construct the ~~xx~~ situation - pseudo-pattern - as a relationship among things whose names appear in this vocabulary. So as to be quite sure that they will then correspond to the patterns in the language and you then allow a kind of quick hook up to take place because of associations of the names that have been given.

~~x~~ I'd like to start discussing that right away. I know that ~~x~~ this is obscure and it is very difficult rather than taking me up on this last few sentences if you want to go back and simply deal with the whole problem that I've been mentioning. The

whole question of how do you get a set of patterns out of the language when your confronting with the situation. I think that would be wise.

Question:

Reply: Well, your right and I mean in an idealistic world you'd be right. I think the trouble is that the human mind - I mean our minds - aren't good enough to take care of that. Let's just pursue the carport example for a moment. Of course your right it was sloppy that the climate wasn't mentioned in the carport context. There is no ~~doubt~~ doubt about that - I think that your right there. That was something that was foreseeable. But what I really believe was not really foreseeable was the fact that a weekend house and a regular house in the identical climate pose different problems, for the reason that I gave. One tends to be visiting the weekend house at times of good weather and also not for long enough to make it worth while. Now the trouble is that to previsualize every one of the various cases where the pattern does not apply or every one of the possible extensions seems to me a kind of - actually an impossible feat.

Student:

Reply: But to take care of this wouldn't that context to have to have been written for such and such a climate the parking associated with the dwelling provided that it is not a weekend house.

Student:

Reply: But it comes up - suppose let's say that it comes up for all dwellings in urban areas. It is true. Yes, but how could we have known that before going through this whole argument which I've just presented? No, when we were writing the pattern how did we know that in urban areas was relevant unless we had this thought that a weekend house has a kind of a different problem attached to it. ^{Either} How do you know where to stop or how do you know whether to include it. I didn't know to include it. I never thought of it. -- Well, it obviously narrowing them down to some extent because - as in the examples that have been given I think its pretty clear that the

context statement does do the beginnings of the job of doing that. I mean the verbal written statement of the context that you try to put down begins to do it. What I'm trying to indicate here that there is no statement - I don't yet think I've seen a context statement which is perfect. We haven't discussed this very much but I think that there have been similar feelings from a number of you. Many people have said that the real difficulty here seems to be in the accurate writing of the context statement and getting it in both narrow enough and wide enough and I think everybody's recognized that and what I'm trying to say here that it's kind of hopeless to think that that ~~problem~~ process is going to be one which you can ever sort of do on the day in which you write the pattern. But it's necessarily an ongoing ~~process~~ process and your gradually going to discover the range of context, slowly. Your going ~~to discover the range of context~~ to realize you can extend them here, narrow it here and that this ~~whole~~ whole thing has got to be built in such a way that it can do that, because otherwise you're kidding yourself, that's what I'm saying.

Question:

Reply: Right, and yet let's just ask quickly why does that pattern not apply to the case I've described this morning. Actually the reason is the following: when you've got a two acre site, the instructions that you give - first of all in a weekend house you never have somebody coming to your house without instructions - or virtually never - and the second thing is that under those circumstances at that scale when you've got things parcels as big as two acres the kind of instructions that you give somebody are now - look you take this curve and then there's a fork and then you'll see a big oak tree and then the ground falls off to the left and then my house is down there. It would be sort of ludicrous to have huge numbers up in the middle of the woods.

Right, right exactly - but you see the problem is the same as in the other example - that is it would have been very difficult to anticipate that ~~when~~ when one hadn't been through that whole argument - it would have been really difficult to know exactly

what is precise~~xx~~ range of conditions where that pattern holds. You make a stab at it - the point is you just suggested leaving out urban areas - well I ~~x~~ kind of agree with that because there is nothing really about urban areas which is relevant to the problem its just that this particular situation happens not to have that problem. And probably there are half a dozen other particular situations which don't have that problem and someone wants to exclude those two and yet you can't exclude them in advance.

Question:

Reply: Oh, the problem doesn't occur - your right the problem doesn't occur but the context as stated was a street where cars are driving somewhere between 5 and 30 mph - actually I don't even know how we came up with 5 - any way people are driving at 5 miles down these roads - as written it holds - now in that case I think you really could not claim that it was slopply written - in fact that one was given a great deal of thought and was quite well written but the point is even though it was well written it still breaks down in a number of cases. I think this is an important point.

Question:

Reply: I don't understand what your saying, at all. Sorry, can you translate more clearly - I just don't literally get your meaning.

Student:

Reply: What do you mean condition by it

Solution changes the context changes? (Student)

Chris: I actually don't understand what your saying

Students: I think he's saying that the context is so closely related to the rest of the contents that -----

Chris: Your saying its an integral part of the pattern. Yes, that's an interesting

fact. I mentioned at one ~~a~~ point that we were in some doubt as to whether regard the context and the pattern as one entity or two. From a logical point of view in developing a particular pattern you would have to regard them as two because the argument goes in this context this problem arising and is solved by this pattern. But as far as conceiving of it as an entity in the language ~~a~~ I think there is a lot to be said for viewing it as a unitary thing.

And that become clear in fact when I was giving the whole discussion of memory a week ago I was using - I was talking about both together. That is true.

Student:

Repl~~t~~: This still - right exactly. We haven't really come to grips yet with any discussion about how you actually succeed in getting the right patterns ~~out~~ out of the language. I would like to turn to that slightly.

Student:

Reply: Well, I don't think there's any harm - I mean in ~~x~~ view ~~of~~ after you've hooked things up in the way that I've described and when you're then trying to apply names to the various things I think you can certainly use action like names to describe some of the context. Because the names are no longer referring to kinds of objects - that doesn't really get us out ~~xxx~~ of the difficulty - I agree with I think you can do that sometimes.

Student:

Reply: No - I know what you're saying but I don't think ~~xxx~~; he was raising that difficulty. I mean proposing to call some of the parts by action names doesn't mean that you're messing around ~~x~~ with the tendency things. For instance instead of referring to a thing as a park you could easily refer to it as a recreation area ~~xxxx~~ at which point you're giving it already a beginning of a sort of action name and I don't think it does any harm.

Student:

Reply; By means of this relation~~x~~ that I've been talking about the whole time.

Student - that relation is two things (something about the two doors in the drawing on the board)

Chris: But I mean in the same sense - Look - let's make up a quick imaginary pattern. I mean a ridiculous one. Let suppose theres this thing in the park and there has to be a water fountain every quarter miles in each direction - or suppose that somebody came up with some pattern like that. Well, it becomes entirely irrelevant whether you call this thing - we've already agreed that there's no future in trying to worry about the names associated with these things and ~~xxx~~ whether you call that a park or whether you want to call it a place where people are running around and enjoying themselves or taking walks - you see the only issue is is it identical - what other parts or what other patterns is it identified with.

Student:

Reply: Yes, that's right. Now, wait - let's get this thing straight - look you've got the patterns in the language then you must then create - i described this a week ago - a list of names that is probably changing and definitely it's application to the patterns is changing and that list of names whether they happen to contain names which have things like activities in them or whether they just contain just purely things like brick and mortar that's ~~x~~ irrelevant. What matters is that structure of that list of names conveys accurately the hookup here and then your going to build your situation - that is a given site with such and such demands or it has next to such and such - out of the items on this list of names. That part is clear. I think that your - you can certainly do what you've proposed - I ~~x~~ still think there is a difficulty about getting into the language though and getting the right patterns.

Student:

Reply: It depends what part of the house your dealing with --- not necessarily p the most important things in some cases might be the location sheerly from the ~~xxxxxxxxxxx~~ point of view of quiet. Which has nothing to do with flows at all.

Not with flows within the site. X I think that will be a very very - to suddenly try and set up some kind of system like that on top of all - the whole intention of what we've been describing is that you don't make any preassumptions about some sort of narrow little list of special things x out of which your going to hope to build everything. I think that would be very dangerous. I would disagree with that. I think you could easily construct counter examples of cases just to show that there is stuff that you can't handle like that.

Student: Abstracts -- which seem to work alright at times as trying to find a way into

Chris: If you can invent a category which doesn't have the two difficulties that I've mentioned, I think that would be fine.

Student: Metelallergical abstractsthis kind of difficulty does occur or is this a different situation.....

Chris: I don't know - I can't really answer that.

Let me make a quick comment there though - as x far as the work that you do - I'd like to to struggle with this - this is a termondous difficulty - what I've been talking about this morning and I'd like x you to struggle with it in the following sa sense that when you construct your little sub-language of patterns I would like you to make up a couple of sites or special circumstances where those particular patterns that you've described could - or some of them or all of them - apply and in particular grapple with the question of a case where only some of them apply. Probably you'll have one case where all of them apply. I guess ~~thaxxxx~~ thats how you'll invent your system. But then also try and deal with a case where only some of them apply and ask yourself how someone x who had no knowledge of the patterns that you had made available could find his way to that correct sub-set. I'd like you to grapple with that even though I don't know how to solve it myself - but I would like you to try and come to terms with it.