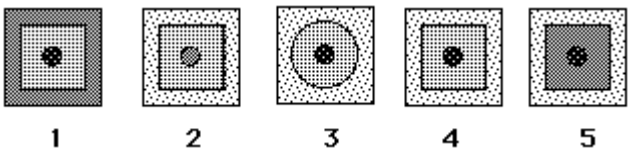
Blind Mind



Consider the five shapes

Decide Which shape is the MOST DIFFERENTJustify your decision.

This sort of task is common in Intelligence tests. Most of the time there is an objective, logical or statistical method of resolving the problem. In other words there is an algorithm. There are useful "tricks" in these types of tests, the tricks are useful because they are so widely applicable to facets of life such as picking out features of arguments and analysis of a problems, deciding which car or dress to buy, things which help you discover and choose alternatives. The kind of thing can be called "pattern recognition" and a person who is good at it is thought to be smarter then a person who isn't. The really clinching argument here is that this view is shared by the actual people involved: The person who generally "can" thinks it is smarter than the person who generally "can't" AND the person who generally "can't" thinks it is less smart than the person who generally "can".

To compensate my ego, whenever I generally can't recognise patterns, solve a problem or follow an argument, I initially make up excuses, usually to do with some physical rather than mental deficit (poor eyesight) or lack of experience, but I still feel the sting that someone is smarter than me, I recognise the harsh truth and it adds veracity to the definition of intelligence as "The ability to analyse patterns" and I try to increase my skills in that particular area of pattern recognition... because I want to be smarter.

Example: ability to play chess, understand rubics cube, understanding what a book or film or painting is getting at, being able to understand algebra, seeing the pictures in those "3D" drawings (such as the dinosaurs). There is a skill in these which is different from factual knowledge, such as in Trivial Pursuit, or being able to recite formulas, or knowing the names and personalities of characters in a book or film (like the academic names for the dinosaurs in Jurassic Park)... That isn't "smart", it's just "knowledgeable".

"Knowledge is fuel for intelligence: petrol is fuel for engines: food is fuel for the body" This statement is, itself, a "pattern recognition" task, to help clarify the position I'm taking, it is a set of metaphors, showing the same reasoning in a different context. The inference here is that fuel is different from an engine, an engine runs and does useful things, it needs the fuel but the fuel itself is inert. I wish to identify this relationship with the relationship between knowledge and intelligence, the third part of the metaphor about food and body is intended to make the point in another familiar context... The pattern I want you to recognise is that all three statements have a right hand, complex, thing that makes use of the left hand, simpler, thing and needs it to function, and that the simple, left, thing is dumb and senseless of the uses to which it can be put by the complex, right, thing. I could then summarise the idea into a glib phrase (one that sounds good but is not very meaningful by itself).

"knowledge has no sense, Intelligence makes sense of knowledge"

People are good at metaphors, that's why other people use them to help explain things. The set of metaphors I used up there didn't require the explanation that followed, your intelligence, fuelled by your experience of previous metaphors and concepts of fuel, engines , food and bodies would enable you to recognise the patterns in the metaphor and

understand the point I'm making.

The more intelligent amongst you will recognise a pretty pattern: That I am using a definition of intelligence as an example in a definition of intelligence. Such a concept is called recursion... and you may also see the rather elitist beginning of this paragraph, itself, is another level in the recursion.

There are some tricks to recognising patterns, they are part of the experience and knowledge that can fuel your intelligence. This fuel is necessary for you to perform better, for example, if you had to do an IQ test in Norweigen, knowledge and experience of the Norweigen language would enable you to perform better, the same sort of thing as physical fitness being helpful for success in sport. It wasn't until recently that potential immigrants to Australia had to pass an IQ test...in English, which mixes up "social engineering" with "intelligence".

Most pattern recognition tests ask you to pick one item from a set... the most different, the one that doesn't belong... or something equivalent to identifying the pattern in the items and then the one item that least or most fits the pattern.

To make a general tool for pattern recognition, the idea is to find a common language that patterns can be translated into. The concept of number is the most generally applicable comparative tool that the human mind has devised. Some people don't like numbers because they have not been overly successful at using them, overcoming such fears will enable you to analyse more problems and be assessed by yourself and others as more intelligent.

There are differences between numbers and words that make numbers bite the mind that wields them more so than words.

Numbers are conceptually the same in every context and applied to every circumstance, meanings for words can be altered by the context in which they are used: "Two is never equal to three, even for very large values of two".the concept of "two", the twoness of something does not depend at all on the something. Two bears, two cups, two numbers: the concept of twoness applies equally to bears, cups and numbers ... so you can't hang a mental picture on a number (like you can with "bear")

Each number can be expressed in terms of every other number so their interaction swamps you with infinity whereas words interact on a finite level contrived by an author. 2 = 3-1, 2 =6/3, 2 = -1+3..... try expressing cat in terms of dog and tin can.

To achieve such generality the concept of number has to be extremely fundamental, it isn't "human" (like words, societies, emotions, experiences) and finite, it is "natural" (atomic, primordial,subliminal, intangible, precise) and infinite. So if we are trying to measure peoples "natural" abilities then "human" tools are too "big", like trying to do brain surgery with a jack hammer... it just isn't subtle or sterile or sharp enough.

So to the "tricks" of pattern recognition: Consider a set of items that you want to differentiate between.

- Identify ALL objective differences
- Give every objective difference a rating
- Give every item a score by summing the ratings
- Make your decision based on the final score for each item.

You may need to repeat some of the steps several times to reach a final rating

Subjective differences are things that include a matter of opinion, not entirely attributable to facts or logic. With regard to a set of patterns, any attribute determined on the basis of information not in the patterns or instructions is "subjective" because it's not based solely on the facts at hand, so an objective attribute is one based on what is in the patterns and instructions, without consideration of outside influences. Subjectivity mostly manifests itself in a preference of one attribute over another, for example in the set of 5 patterns at the top, most people choose shape 3, because of "the circle"... but they all have "circles" and they all have different shadings... the first impression values one attribute over the others. This is the error most people make, thinking there is a one step solution, trusting that all others would see the patterns the same way... this is a subjective judgment and is equivalent to stating that the other differences in the patterns don't matter. See the other set of shapes later in this document for an example.

Initially every difference should be given a rating of 1, since there is usually no objective reason to prefer one difference over another. The number of items which share a feature constitute the rating of that feature for a shape.

The sum of the ratings of the all the features for a shape constitute its score. The way this has been explained, a high score indicates alikeness and a low score differentness.

It will most likely be that maximum or minimum ratings will be shared amongst patterns, in other words there need not be a single pattern which is most different or most the same, the concept actually gives each pattern a score, there is more information than just the extremes, so, for instance, you can say by what percentage one pattern differs from another

Here are two examples, they both use the set of country flags consisting of three vertical stripes:

Chad	BYR
France	BWR
Guinea	RWG
Ireland	GWY
Italy	GWR
Ivory Coast	YWG
Mali	GYR
Romania	BWR

Key B Blue, Y Yellow, W White, R Red, G Green

Example 1 Of all the flags which consist of three vertical stripes, which has the most unique set of colours?

	Blue	Green	Red	White	Yellow	Rating
Chad	1		1		1	12
France	1		1	1		14
Guinea		1	1	1		17
Ireland		1		1	1	16
Italy		1	1	1		17
Ivory Coast		1		1	1	16
Mali		1	1		1	15
Romania	1	1		1		15
	3	6	5	6	4	

Step 1 Identify differences (that's all the ones)

```
Step 2  give each difference a rating (add up the columns)
step 3  give each flag a rating by adding the column total by row entries

(for example Chad has a 3 rating (for blue) + 5 (for red) + 4 (for yellow) the to
```

The rightmost column is a measure of sameness of colour (the higher the number the more the same) hence Chad has the most different flag on this criterion.. Note that does not mean in anyway that Chad is a more different country than another or that Blue is a better colour than green, such judgments would have to be based on information not found in the puzzle. There is no judgment based on facts outside the puzzle itself.

Example 2
Of all the country flags consisting of three vertical stripes which are the most different (Note this is a different question from the previous example because we now have to take the ORDER of the colours into account as well)

country	flag	left	mid	right	Score
Chad	BYR	3	2	5	10
France	BWR	3	6	5	14
Guinea	RWG	1	6	2	9
Ireland	GWY	3	6	1	10
Italy	GWR	3	6	5	14
Ivory Coast	YWG	1	6	2	9
Mali	GYR	3	1	5	9
Romania	BWR	3	6	5	14

I have left out the tables that generate the scores for left, mid and right colours for brevity, these are counted using the same process as for the first example.

In this example there is no one minimum (most different) score, so if the word "are" were replaced by "is", in the question, then there would not be an answer to it, but there "are" 3 flags with a score of 9 so the answer is {Guinea, Ivory Coast and Mali}

The two examples show the need to comprehend the question precisely , they both sound the same on first reading, but one requires that the order of the colours be eliminated and the other that the order of the colours be considered. Hence you should also see that in any puzzle you must...

"Consider All the information and nothing but the information"

To summarise:

- Resolution of puzzles which include a subjective element are not reliable or generally reproducible because it involves information outside the puzzle which may differ for different people and circumstances.
- A puzzle is dependably resolved solely on the basis of the information IT contains and not anything to do with the context in which it appears.
- An objective resolution of a puzzle may be possible by use of some procedure (called an algorithm)

Blind Mind is an implementation of such an algorithm, in fact both the picture and colour puzzles presented here can be solved in that way (but the picture puzzle has a twist!). The concept is that you are explaining the patterns to the computer as you would the flag

problems to a person blind from birth with no concept of colour. This is a neat trick for making the subjective elements of a puzzle stand out.. that is "it has to do with colour... so lets pretend I don't know what colour is..." In doing so you basically solve the puzzle for yourself, the computer just does the add ups... so it is solving an intelligence test problem, but in a purely automated way. It is an "expert" on puzzle solving, because it has a procedure for solving many apparently different puzzles.

Here is another pattern puzzle

consider the five shapes
Decide Which shape is the MOST DIFFERENT
Justify your decision.

The table of values for this puzzle is exactly the same as for the first pattern puzzle, it is shape 4 which is the most different in both cases. A first impression would indicate shape 2 to be the most different, but this cannot be justified objectively, remember it was shape 3 in the first set of shapes which subjectively looks the most different.

YOUR TASK is to design a "Puzzle expert" , using the strategy described above, like the sample HyperCard stack "Blind Mind", A good indication of your success would be :

- To demonstrate that your algorithm solves the flag problem
- That you are able to design and solve similar puzzles (and that your algorithm can do it too)
- Lastly there is just a bit more to this than has been covered so far: if you can objectively explain WHY it is shape 4 which is the most different both the set of shapes in this document (that is, your algorithm identifies shape 4), then you'll have discovered a really neat little twist which I'll leave to you to discover!

Post Script
Can all puzzles be solved by an algorithm? (this question is itself a "puzzle") the answer is NO... and that CAN be shown by an algorithm! This is called Godel's Theorem, it can be rephrased to be emotive and subjective so beware.

There are things which are true which CANNOT be proved!

Bill Taylor