

This is an OCR copy from "The Complete Works of Lewis Carroll", as published.

## A SELECTION FROM SYMBOLIC LOGIC

*(Even in his most abstruse works on mathematics and logic, Lewis Carroll could not fully repress his instinct for nonsense. SYMBOLIC LOGIC, for instance, shows the mind of Charles Lutwidge Dodgson rather than the whimsical Lewis Carroll. There would be little logic in offering here the entire text of SYMBOLIC LOGIC. Accordingly, the editors have chosen a single example to represent Carroll as he appeared in a completely un-Carrollean book.)*

### INTRODUCTION TO LEARNERS

THE Learner, who wishes to try the question *fairly*, whether this little book does, or does not, supply the materials for a most interesting mental recreation, is *earnestly* advised to adopt the following Rules:

(1) Begin at the *beginning*, and do not allow yourself to gratify a mere idle curiosity by dipping into the book, here and there. This would very likely lead to your throwing it aside, with the remark "This is *much* too hard for me!", and thus losing the chance of adding a very *large* item to your stock of mental delights. This Rule (of not *dipping*) is very *desirable* with *other* kinds of books such as novels, for instance, where you may easily spoil much of the enjoyment you would otherwise get from the story, by dipping into it further on, so that what the author meant to be a pleasant surprise comes to you as a matter of course.

Some people, I know, make a practice of looking into Vol. III first, just to see how the story ends: and perhaps it is as well just to know that all ends *happily* that the much-persecuted lovers *do* marry after all, that he is proved to be quite innocent of the murder, that the wicked cousin is completely foiled in his plot and gets the punishment he deserves, and that the rich uncle in India (*Qu. Why in India? Ans. Because, somehow, uncles never can get rich anywhere else*) dies at exactly the right moment before taking the trouble to read Vol. I. This, I say, is *just* permissible with a *novel*, where Vol. III has a *meaning*, even for those who have not read the earlier part of the story; but, with a *scientific* book, it is sheer insanity: you will find the latter part *hopelessly* unintelligible, if you read it before reaching it in regular course.

(2) Don't begin any fresh Chapter, or Section, until you are certain that you *thoroughly* understand the whole book *up to that point*, and that you have worked, correctly, most if not all of the examples which have been set. So long as you are conscious that all the land you have passed through is absolutely *conquered*, and that you are leaving no unsolved difficulties *behind* you, which will be sure to turn up again later on, your triumphal progress will be easy and delightful. Otherwise, you will find your state of puzzlement get worse and worse as you proceed, till you give up the whole thing in utter disgust.

(3) When you come to any passage you don't understand, *read it again*: if you *still* don't understand it, *read it again*: if you fail, even after *three* readings, very likely your brain is getting a little tired. In that case, put the book away, and take to other occupations, and next day, when you come to it fresh, you will very likely find that it is *quite* easy.

(4) If possible, find some genial friend, who will read the book along with you, and will talk over the difficulties with you. *Talking* is a wonderful smoother-over of difficulties. When I come upon anything in Logic or in any other hard subject that entirely puzzles me, I find it a capital plan to talk it over, *aloud*, even when I am all alone. One can explain things so clearly to one's self! And then, you know, one is so *patient* with one's self: one never gets irritated at one's own stupidity!

If, dear Reader, you will faithfully observe these Rules, and so give my little book a really *fair* trial, I promise you, most confidently, that you will find Symbolic Logic to be one of the most, if not *the* most, fascinating of mental recreations! In this First Part, I have carefully avoided all difficulties which seemed to me to be beyond the grasp of an intelligent child of (say) twelve or fourteen years of age. I have myself taught most of its contents, *vivâ voce*, to *many* children, and have found them take a real intelligent interest in the subject. For those, who succeed in mastering Part I, and who begin, like Oliver, "asking for more", I hope to provide, in Part II, some *tolerably* hard nuts to crack nuts that will require all the nut-crackers they happen to possess!

Mental recreation is a thing that we all of us need for our mental health; and you may get much healthy enjoyment, no doubt, from Games, such as Backgammon, Chess, and the new Game "Halma". But, after all, when you have made yourself a first-rate player at any one of these Games, you have nothing real to *show* for it, as a *result*! You enjoyed the Game, and the victory, no doubt, *at the time*: but you have no *result* that you can treasure up and get real *good* out of. And, all the while, you have been leaving unexplored a perfect *mine* of wealth. Once master the machinery of Symbolic Logic, and you have a mental occupation always at hand, of absorbing interest, and one that will be of real *use* to you in *any* subject you may take up. It will give you clearness of thought the ability to *see your way* through a puzzle the habit of arranging your ideas in an orderly and get-at-able form and, more valuable than all, the power to detect *fallacies*, and to tear to pieces the flimsy illogical arguments, which you will so continually encounter in books, in newspapers, in speeches, and even in sermons, and which so easily delude those who have never taken the trouble to master this fascinating Art. *Try it*. That is all I ask of you! L.C.  
29, BEDFORD STREET, STRAND.

*February 21, 1896.*

***Sets of Concrete Propositions, proposed as Premisses for Sorites. Conclusions to be found.***

**1**

- (1) Babies are illogical;
- (2) Nobody is despised who can manage a crocodile;
- (3) Illogical persons are despised.

**2**

- (1) My saucepans are the only things I have that are made of tin;
- (2) I find all your presents very useful;
- (3) None of my saucepans are of the slightest use.

**3**

- (1) No potatoes of mine, that are new, have been boiled;
- (2) All my potatoes in this dish are fit to eat;
- (3) No unboiled potatoes of mine are fit to eat.

**4**

- (1) There are no Jews in the kitchen;
- (2) No Gentiles say 'shpoonj';
- (3) My servants are all in the kitchen.

**5**

- (1) No ducks waltz;
- (2) No officers ever decline to waltz;
- (3) All my poultry are ducks.

**6**

- (1) Every one who is sane can do Logic;
- (2) No lunatics are fit to serve on a jury;
- (3) None of your sons can do Logic.

**7**

- (1) There are no pencils of mine in this box;
- (2) No sugar-plums of mine are cigars;
- (3) The whole of my property, that is not in this box, consists of cigars.

**8**

- (1) No experienced person is incompetent;
- (2) Jenkins is always blundering;
- (3) No competent person is always blundering.

**9**

- (1) No terriers wander among the signs of the zodiac;
- (2) Nothing, that does not wander among the signs of the zodiac, is a comet;
- (3) Nothing but a terrier has a curly tail.

**10**

- (1) No one takes in the Times, unless he is well-educated;
- (2) No hedge-hogs can read;
- (3) Those who cannot read are not well-educated.

**11**

- (1) All puddings are nice;
- (2) This dish is a pudding;
- (3) No nice things are wholesome.

**12**

- (1) My gardener is well worth listening to on military subjects;
- (2) No one can remember the battle of Waterloo, unless he is very old;
- (3) Nobody is really worth listening to on military subjects, unless he can remember the battle of Waterloo.

**13**

- (1) All humming birds are richly coloured;
- (2) No large birds live on honey;
- (3) Birds that do not live on honey are dull in colour.

**14**

- (1) No Gentiles have hooked noses;
- (2) A man who is a good hand at a bargain always makes money;
- (3) No Jew is ever a bad hand at a bargain.

**15**

- (1) All ducks in this village that are branded "B", belong to Mrs. Bond;
- (2) Ducks in this village never wear lace collars, unless they are branded "B";
- (3) Mrs. Bond has no gray ducks in this village.

**16**

- (1) All the old articles in this cupboard are cracked;
- (2) No jug in this cupboard is new;
- (3) Nothing in this cupboard, that is cracked, will hold water.

**17**

- (1) All unripe fruit is unwholesome;
- (2) All these apples are wholesome;
- (3) No fruit, grown in the shade, is ripe.

**18**

- (1) Puppies, that will not lie still, are always grateful for the loan of a skipping-rope;
- (2) A lame puppy would not say "thank you" if you offered to lend it a skipping-rope;
- (3) None but lame puppies ever care to do worsted-work.

**19**

- (1) No name in this list is unsuitable for the hero of a romance;
- (2) Names beginning with a vowel are always melodious;
- (3) No name is suitable for the hero of a romance, if it begins with a consonant.

**20**

- (1) All members of the House of Commons have perfect self-command;
- (2) No M.P., who wears a coronet, should ride in a donkey-race;
- (3) All members of the House of Lords wear coronets.

**21**

- (1) No goods in this shop, that have been bought and paid for, are still on sale;
- (2) None of the goods may be carried away, unless labeled "sold";

(3) None of the goods are labeled "sold" unless they have been bought and paid for.

## 22

- (1) No acrobatic feats, that are not announced in the bills of a circus, are ever attempted there;
- (2) No acrobatic feat is possible, if it involves turning a quadruple somersault;
- (3) No impossible acrobatic feat is ever announced in a circus bill.

## 23

- (1) Nobody, who really appreciates Beethoven, fails to keep silence while the Moonlight-Sonata is being played;
- (2) Guinea-pigs are hopelessly ignorant of music;
- (3) No one, who is hopelessly ignorant of music, ever keeps silence while the Moonlight-Sonata is being played.

## 24

- (1) Coloured flowers are always scented;
- (2) I dislike flowers that are not grown in the open air;
- (3) No flowers grown in the open air are colourless.

## 25

- (1) Showy talkers think too much of themselves;
- (2) No really well-informed people are bad company;
- (3) People who think too much of themselves are not good company.

## 26

- (1) No boys under 12 are admitted to this school as boarders;
- (2) All the industrious boys have red hair;
- (3) None of the day-boys learn Greek;
- (4) None but those under 12 are idle.

## 27

- (1) The only articles of food, that my doctor allows me, are such as are not very rich;
- (2) Nothing that agrees with me is unsuitable for supper;
- (3) Wedding-cake is always very rich;
- (4) My doctor allows me all articles of food that are suitable for supper.

## 28

- (1) No discussions in our Debating-Club are likely to rouse the British Lion, so long as they are checked when they become too noisy;
- (2) Discussions, unwisely conducted, endanger the peacefulness of our Debating-Club;
- (3) Discussions, that go on while Tomkins is in the Chair, are likely to rouse the British Lion;
- (4) Discussions in our Debating-Club, when wisely conducted, are always checked when they become too noisy.

**29**

- (1) All my sons are slim;
- (2) No child of mine is healthy who takes no exercise;
- (3) All gluttons, who are children of mine, are fat;
- (4) No daughter of mine takes any exercise.

**30**

- (1) Things sold in the street are of no great value;
- (2) Nothing but rubbish can be had for a song;
- (3) Eggs of the Great Auk are very valuable;
- (4) It is only what is sold in the streets that is really rubbish.

**31**

- (1) No books sold here have gilt edges, except what are in the front shop;
- (2) All the authorized editions have red labels;
- (3) All the books with red labels are priced at 5s. and upwards;
- (4) None but authorized editions are ever placed in the front shop.

**32**

- (1) Remedies for bleeding, which fail to check it, are a mockery;
- (2) Tincture of Calendula is not to be despised;
- (3) Remedies, which will check the bleeding when you cut your finger, are useful;
- (4) All mock remedies for bleeding are despicable.

**33**

- (1) None of the unnoticed things, met with at sea, are mermaids; e
- (2) Things entered in the log, as met with at sea, are sure to be worth remembering;
- (3) I have never met with anything worth remembering, when on a voyage;
- (4) Things met with at sea, that are noticed, are sure to be recorded in the log.

**34**

- (1) The only books in this library, that I do not recommend for reading, are unhealthy in tone;
- (2) The bound books are all well-written;
- (3) All the romances are healthy in tone;
- (4) I do not recommend you to read any of the unbound books.

**35**

- (1) No birds, except ostriches, are 9 feet high;
- (2) There are no birds in this aviary that belong to any one but me;
- (3) No ostrich lives on mince-pies;
- (4) I have no birds less than 9 feet high.

**36**

- (1) A plum-pudding, that is not really solid, is mere porridge;
- (2) Every plum-pudding, served at my table, has been boiled in a cloth;
- (3) A plum-pudding that is mere porridge is indistinguishable from soup;
- (4) No plum-puddings are really solid, except what are served at my table.

### 37

- (1) No interesting poems are unpopular among people of real taste;
- (2) No modern poetry is free from affectation;
- (3) All your poems are on the subject of soap-bubbles;
- (4) No affected poetry is popular among people of real taste;
- (5) No ancient poem is on the subject of soap-bubbles.

### 38

- (1) All the fruit at this Show, that fails to get a prize, is the property of the Committee;
- (2) None of my peaches have got prizes;
- (3) None of the fruit, sold off in the evening, is unripe;
- (4) None of the ripe fruit has been grown in a hot-house;
- (5) All fruit, that belongs to the Committee, is sold off in the evening.

### 39

- (1) Promise-breakers are untrustworthy;
- (2) Wine-drinkers are very communicative;
- (3) A man who keeps his promises is honest;
- (4) No teetotalers are pawnbrokers;
- (5) One can always trust a very communicative person.

### 40

- (1) No kitten, that loves fish, is unteachable.
- (2) No kitten without a tail will play with a gorilla;
- (3) Kittens with whiskers always love fish;
- (4) No teachable kitten has green eyes;
- (5) No kittens have tails unless they have whiskers.

### 41

- (1) All the Eton men in this College play cricket;
- (2) None but the Scholars dine at the higher table;
- (3) None of the cricketers row;
- (4) My friends in this College all come from Eton;
- (5) All the Scholars are rowing-men.

### 42

- (1) There is no box of mine here that I dare open;
- (2) My writing-desk is made of rose-wood;
- (3) All my boxes are painted, except what are here;
- (4) There is no box of mine that I dare not open, unless it is full of live scorpions;

(5) All my rose-wood boxes are unpainted.

### 43

- (1) Gentiles have no objection to pork;
- (2) Nobody who admires pigsties ever reads Hogg's poems;
- (3) No Mandarin knows Hebrew;
- (4) Every one, who does not object to pork, admires pigsties;
- (5) No Jew is ignorant of Hebrew.

### 44

- (1) All writers, who understand human nature, are clever;
- (2) No one is a true poet unless he can stir the hearts of men;
- (3) Shakespeare wrote "Hamlet";
- (4) No writer, who does not understand human nature, can stir the hearts of men;
- (5) None but a true poet could have written "Hamlet".

### 45

- (1) I despise anything that cannot be used as a bridge;
- (2) Everything, that is worth writing an ode to, would be a welcome gift to me;
- (3) A rainbow will not bear the weight of a wheelbarrow;
- (4) Whatever can be used as a bridge will bear the weight of a wheel-barrow;
- (5) I would not take, as a gift, a thing that I despise.

### 46

- (1) When I work a Logic-example without grumbling, you may be sure it is one that I can understand;
- (2) These Sorites are not arranged in regular order, like the examples I am used to;
- (3) No easy example ever makes my head ache;
- (4) I can't understand examples that are not arranged in regular order, like those I am used to;
- (5) I never grumble at an example, unless it gives me a headache.

### 47

- (1) Every idea of mine, that cannot be expressed as a Syllogism, is really ridiculous;
- (2) None of my ideas about Bath-buns are worth writing down;
- (3) No idea of mine, that fails to come true, can be expressed as a Syllogism;
- (4) I never have any really ridiculous idea, that I do not at once refer to my solicitor;
- (5) My dreams are all about Bath-buns;
- (6) I never refer any idea of mine to my solicitor, unless it is worth writing down.

### 48

- (1) None of the pictures here, except the battle-pieces, are valuable;
- (2) None of the unframed ones are varnished;
- (3) All the battle-pieces are painted in oils;
- (4) All those that have been sold are valuable;
- (5) All the English ones are varnished;
- (6) All those in frames have been sold.



**49**

- (1) Animals, that do not kick, are always unexcitable;
- (2) Donkeys have no horns;
- (3) A buffalo can always toss one over a gate;
- (4) No animals that kick are easy to swallow;
- (5) No hornless animal can toss one over a gate;
- (6) All animals are excitable, except buffaloes.

**50**

- (1) No one, who is going to a party, ever fails to brush his hair;
- (2) No one looks fascinating, if he is untidy;
- (3) Opium-eaters have no self-command;
- (4) Every one, who has brushed his hair, looks fascinating;
- (5) No one wears white kid gloves, unless he is going to a party;
- (6) A man is always untidy, if he has no self-command.

**51**

- (1) No husband, who is always giving his wife new dresses, can be a cross-grained man;
- (2) A methodical husband always comes home for his tea;
- (3) No one, who hangs up his hat on the gas-jet, can be a man that is kept in proper order by his wife;
- (4) A good husband is always giving his wife new dresses;
- (5) No husband can fail to be cross-grained, if his wife does not keep him in proper order;
- (6) An unmethodical husband always hangs up his hat on the gas-jet.

**52**

- (1) Everything, not absolutely ugly, may be kept in a drawing-room;
- (2) Nothing, that is encrusted with salt, is ever quite dry;
- (3) Nothing should be kept in a drawing-room, unless it is free from damp;
- (4) Bathing-machines are always kept near the sea;
- (5) Nothing, that is made of mother-of-pearl, can be absolutely ugly;
- (6) Whatever is kept near the sea gets encrusted with salt.

**53**

- (1) I call no day "unlucky", when Robinson is civil to me;
- (2) Wednesdays are always cloudy;
- (3) When people take umbrellas, the day never turns out fine;
- (4) The only days when Robinson is uncivil to me are Wednesdays;
- (5) Everybody takes his umbrella with him when it is raining;
- (6) My "lucky" days always turn out fine.

**54**

- (1) No shark ever doubts that it is well fitted out;
- (2) A fish, that cannot dance a minuet, is contemptible;
- (3) No fish is quite certain that it is well fitted out, unless it has three rows of teeth;

- (4) All fishes, except sharks, are kind to children;
- (5) No heavy fish can dance a minuet;
- (6) A fish with three rows of teeth is not to be despised.

## 55

- (1) All the human race, except my footmen, have a certain amount of common sense;
- (2) No one, who lives on barley-sugar, can be anything but a mere baby;
- (3) None but a hop-scotch player knows what real happiness is;
- (4) No mere baby has a grain of common sense;
- (5) No engine-driver ever plays hop-scotch;
- (6) No footman of mine is ignorant of what true happiness is.

## 56

- (1) I trust every animal that belongs to me;
- (2) Dogs gnaw bones;
- (3) I admit no animals into my study, unless they will beg when told to do so;
- (4) All the animals in the yard are mine;
- (5) I admit every animal, that I trust, into my study;
- (6) The only animals, that are really willing to beg when told to do so, are dogs.

## 57

- (1) Animals are always mortally offended if I fail of notice them;
- (2) The only animals that belong to me are in that field;
- (3) No animal can guess a conundrum, unless it has been properly trained in a Board-School;
- (4) None of the animals in that field are badgers;
- (5) When an animal is mortally offended, it always rushes about wildly and howls;
- (6) I never notice any animal, unless it belongs to me;
- (7) No animal, that has been properly trained in a Board-School, ever rushes about wildly and howls.

## 58

- (1) I never put a cheque, received by me, on that file, unless I am anxious about it;
- (2) All the cheques received by me, that are not marked with a cross, are payable to bearer;
- (3) None of them are ever brought back to me, unless they have been dishonoured at the Bank;
- (4) All of them, that are marked with a cross, are for amounts of over £100;
- (5) All of them, that are not on that file, are marked "not negotiable";
- (6) No cheque of yours, received by me, has ever been dishonoured;
- (7) I am never anxious about a cheque, received by me, unless it should happen to be brought back to me;
- (8) None of the cheques received by me, that are marked "not negotiable", are for amounts of over ?100.

## 59

- (1) All the dated letters in this room are written on blue paper;
- (2) None of them are in black ink, except those that are written in the third person;
- (3) I have not filed any of them that I can read;
- (4) None of them, that are written on one sheet, are undated;
- (5) All of them, that are not crossed, are in black ink;
- (6) All of them, written by Brown, begin with "Dear Sir";

- (7) All of them, written on blue paper, are filed;
- (8) None of them, written on more than one sheet, are crossed;
- (9) None of them, that begin with "Dear Sir", are written in the third person.

**60**

- (1) The only animals in this house are cats;
- (2) Every animal is suitable for a pet, that loves to gaze at the moon;
- (3) When I detest an animal, I avoid it;
- (4) No animals are carnivorous, unless they prowl at night;
- (5) No cat fails to kill mice;
- (6) No animals ever take to me, except what are in this house;
- (7) Kangaroos are not suitable for pets;
- (8) None but carnivora kill mice;
- (9) I detest animals that do not take to me;
- (10) Animals, that prowl at night, always love to gaze at the moon.

[Click here](#) for a simple text list of the answers.

[Click here](#) for the propositions with a list of the simplified statements included, and hoverable links to the answers.