Symbolization Exercises

Symbolizations with one-place predicates   (Unit 5 Part 1: Sections 5.1-5.6)

Symbolize each of the following sentences using the abbreviation scheme provided:

A^1: *a* is an athlete.　　　B^1: *a* is beautiful.　　　C^1: *a* works out.

F^1: *a* is famous.　　　H^1: *a* is a person.　　　J^1:   *a* is a movie star.

K^1: *a* competes in the Olympics.　　L^1: *a* gets caught in a sex scandal　　a: Wayne Gretzky

S5.01　Everything is beautiful.

S5.02　Something is beautiful.

S5.03　Nothing is beautiful.

S5.04　Something is not beautiful.

S5.05　Some people are famous.

S5.06　Nobody is famous.

S5.07　Everybody is famous.

S5.08　Some people are not famous.

S5.09　Not every athlete is famous.

S5.10　Only movie stars are beautiful.

S5.11　None but the beautiful are famous.

S5.12　All and only movie stars are famous.

S5.13　Not all famous people are beautiful.

S5.14　Only beautiful movie stars are famous.

S5.15　Not all beautiful people are famous.

S5.16　Anybody who works out is beautiful.

S5.17　Although not all athletes are famous, Gretzky, who is an athlete, is.

S5.18　If Wayne Gretzky is not a famous athlete, then nobody is.

S5.19　Among athletes, only those who compete in the Olympics are famous.

S5.20　Movie stars who are beautiful work out.

S5.21　Movie stars and athletes work out.

S5.22　Athletes, who work out, are beautiful.

S5.23　It is necessary to work out to be an Olympic athlete.

S5.24　Some people who get caught in sex scandals are not beautiful.

S5.25　Olympic athletes aren't famous unless they are caught in sex scandals.

S5.26　Only famous athletes get caught in sex scandals.

A^1: *a* is an action.   B^1: *a* is random.   C^1: *a* is carefree.
D^1: *a* is determined by prior states.   E^1: *a* is an event.   F^1: *a* is free.
G^1: *a* is wise   H^1: *a* is happy.   I^1: *a* has ideas
J^1: *a* is a person.   L^1: *a* lives a good life.   a: Anna

S5.27 Anybody who lives a good life is happy.

S5.28 If only carefree people are happy, then Anna is not a happy person.

S5.29 Not everyone who is free is carefree.

S5.30 An action is an event, but not all events are actions.

S5.31 Some happy people aren't wise, and some wise people aren't happy.

S5.32 A person who has ideas and lives a good life is wise.

S5.33 No free action is determined by prior states.

S5.34 If someone is unhappy then not everyone lives a good life.

S5.35 If someone is unhappy, he or she will not live a good life.

S5.36 If anyone is unhappy, Anna is.

S5.37 People who are happy only if they are free don't live a good life.

S5.38 If all events are determined by prior states then no actions are free.

S5.39 Having ideas is not sufficient for a person to be wise.

S5.40 Among wise people, only those who live a good life are happy.

S5.41 If people have ideas if and only if they are happy, then nobody who doesn't have ideas lives a good life.

S5.42 There are no random events if all events are determined by prior states.

S5.43 People who aren't carefree don't live a good life if they aren't happy.

S5.44 Although it is necessary that an event not be determined by prior states in order for it to be free, nothing that is random is free.

S5.45 Since all actions are events, no action is random or free unless events aren't all determined by prior states.

S5.46 If it's not the case that people are happy if they are free, then some people don't live good lives. (Ambiguous: symbolize two logically distinct ways.)

S5.47 Everybody is not happy. (Ambiguous: symbolize two logically distinct ways.)

S5.48 Wise and happy people live a good life. (Ambiguous: symbolize two logically distinct ways.)

S5.49 Only happy people are carefree. (Ambiguous: symbolize two logically distinct ways. Which one do you think is the more natural interpretation?)

A[1]: *a* is alive.
B[1]: *a* has a brain.
C[1]: *a* is conscious.
D[1]: *a* deserves a scholarship.
E[1]: *a* is successful.
F[1]: *a* works hard.
G[1]: *a* is a plant.
H[1]: *a* is a person.
I[1]: *a* is intelligent.
J[1]: *a* is a professor.
K[1]: *a* is at U of T.
L[1]: *a* is a student

S5.50 If every living thing is conscious then plants are intelligent.

S5.51 For a living thing to be conscious it is necessary for it to have a brain.

S5.52 For students to be successful it is sufficient that they work hard.

S5.53 Plants are not intelligent unless they have a brain and are conscious.

S5.54 Plants and other living things are not conscious unless they have brains.

S5.55 Some professors are not successful even though they work hard and are intelligent.

S5.56 Nobody who is not intelligent is a professor at U of T.

S5.57 Only U of T students work hard.

S5.58 Living things are conscious only if they are not brainless.

S5.59 Living things are conscious if they are not brainless.

S5.60 Intelligent students who study at U of T deserve scholarships unless they don't work hard.

S5.61 Professors and students at U of T work hard or they are not successful.

S5.62 Without a brain, no living thing is conscious.

S5.63 To be a successful professor it is not sufficient that you work hard, for you must also be intelligent.

S5.64 Although some intelligent students deserve a scholarship, others don't work hard.

S5.65 Of students, those, and only those, who are hardworking and intelligent deserve scholarships.

S5.66 Some successful people work hard, but not all who work hard are successful.

S5.67 Among living things, all and only those with brains are conscious

S5.68 Professors and students at U of T who fail to work hard are not successful.

S5.69 Even though he/she is intelligent, unless a student works hard, he will not be successful.

S5.70 Students and professors who are intelligent are successful only if they also work hard.

S5.71 Students and professors, who are intelligent, are successful only if they also work hard.

S5.72 If a living thing is conscious, then, given that all conscious things have brains, it will be intelligent.

S5.73 Living things have brains unless they are plants, and in that case, they are neither intelligent nor conscious.