

FURTHER TRANSLATIONS¹

Translate the following statements into symbolic form using capital letters to represent affirmative English Sentences.

1. Turkey is a member of NATO but Iraq is not.

T = Turkey is a member of NATO.

I = Iraq is a member of NATO.

2. Either Brazil or Argentina Destroys its rain forests.

B = Brazil destroys its rain forests.

A = Argentina destroys its rain forests.

3. High definition TV is a technological marvel, but it is expensive.

H = High definition TV is a technological marvel.

E = High definition TV is expensive.

4. If Scotland declares independence, then England reduces imports.

S = Scotland declares independence.

E = England reduces imports.

5. Scotland declares independence only if England reduces imports.

S = Scotland declares independence.

E = England reduces imports.

6. Scotland declares independence if England reduces imports.

S = Scotland declares independence.

E = England reduces imports.

¹ For those of you wanting further exercises, these problems, as well as many others, can be found in Patrick Hurley's *A Concise Introduction to Logic*.

7. China does not export nuclear energy unless Russia does.

C = China exports nuclear energy.

R = Russia exports nuclear energy.

8. Ozone depletion in the atmosphere is a sufficient condition for increased cancer rates.

O = The ozone in the atmosphere is depleted.

C = Cancer rates increase.

9. Either Hungary adopts political reforms and Romania freezes wages or Bulgaria broadens services.

H = Hungary adopts political reforms.

R = Romania freezes wages.

B = Bulgaria broadens services.

10. Either Sweden or Norway reduce deficit spending.

S = Sweden reduces deficit spending.

N = Norway reduces deficit spending.

11. Neither Sweden nor Norway reduce deficit spending.

S = Sweden reduces deficit spending.

N = Norway reduces deficit spending.

12. Peru increases military spending unless both Guyana and Bolivia do not improve health care.

P = Peru increases military spending.

G = Guyana improves health care.

B = Bolivia improves health care.

13. Lydia abandons terrorism if and only if neither Egypt nor Saudi Arabia closes its embassy.

L = Lydia abandons terrorism.

E = Egypt closes its embassy.

S = Saudi Arabia closes its embassy.

14. If either Uganda or Rwanda receives increased aid, then neither Kenya nor Burundi protects its endangered species.

U = Uganda receives increased aid

R = Rwanda receives increased aid

K = Kenya protects its endangered species

B = Burundi protects its endangered species

15. Argentina exports beef, and Brazil exports coffee or Chile exports wood products.

A = Argentina exports beef.

B = Brazil exports coffee.

C = Chile exports wood products.

16. It is not the case that both Anora promotes hydroelectric power and San Marino or Liechtenstein controls inflation.

A = Anora promotes hydroelectric power.

S = San Marino controls inflation.

L = Liechtenstein controls inflation.

17. If Ghana balances its budget, then if Liberia constructs low-cost housing, then Chad's recognizing minority rights implies that Somalia disarms its tribal leaders.

G = Ghana balances its budget.

L = Liberia constructs low-cost housing.

C = Chad recognizes minority rights.

S = Somalia disarms its tribal leaders.

18. Tanzania becomes a banking center provided that Zanzibar attracts foreign capital.

T = Tanzania becomes a banking center.

Z = Zanzibar attracts foreign capital.

19. Human life will not perish unless either we poison ourselves with pollution or a large asteroid collides with the earth.

H = Human life perishes.

P = We poison ourselves with pollution.

A = A large asteroid collides with the earth.

20. If HMOs cut costs, then either preventive medicine is emphasized or the quality of care deteriorates.

H = HMOs cut costs

P = Preventive medicine is emphasized

Q = The quality of care deteriorates.

20. Belarus creates a welfare system only if Latvia and Estonia do too.

B = Belarus creates a welfare system.

L = Latvia creates a welfare system.

E = Estonia creates a welfare system.

21. Not both Pakistan and India take political prisoners.

P = Pakistan takes political prisoners.

I = India takes political prisoners.

22. If Canada creates jobs, then if the United States raises taxes, then Mexico stabilizes its currency.

C = Canada creates jobs.

U = United States raises taxes.

M = Mexico stabilizes its currency.

23. Either clear-cutting in national forests is halted and old growth trees are allowed to stand, or salmon runs will be destroyed and bird habitats obliterated.

C = Clear cutting in national forests is halted.

O = Old growth trees are allowed to stand.

S = Salmon runs will be destroyed.

B = Bird habitats will be obliterated.

24. If the United States freezes drug assets, then either Columbia or Ecuador prosecutes drug dealers.

U = United States Freezes drug assets.

C = Columbia prosecutes drug dealers.

E = Ecuador prosecutes drug dealers.

25. If both Niger and Chad suppress free speech, then either Sudan or Zaire suffers tribal conflicts.

N = Niger suppresses free speech.

C = Chad suppresses free speech.

S = Sudan suffers tribal conflicts.

Z = Zaire suffers tribal conflicts.

26. Argentina exports beef and Brazil exports coffee, or Chile exports wood products.

A = Argentina exports beef.

B = Brazil exports coffee.

C = Chile exports wood products.

27. Either Nigeria or Angola rejects human rights, but it is not the case that both do.

N = Nigeria rejects human rights.

A = Angola rejects human rights.

28. It is not the case that either Malta subsidizes wine production or Corsica and Sardinia subsidize cork production.

M = Malta subsidizes wine production.

C = Corsica subsidizes cork production.

S = Sardinia subsidizes cork production.

29. Its not the case that either Georgia and Armenia conduct nuclear tests or Ukraine and Slovakia abandon nuclear power.

G = Georgia conducts nuclear tests.
A= Armenia conducts nuclear tests.
U= Ukraine abandons nuclear power.
S = Slovakia abandons nuclear power.

30. China's abandoning communism a sufficient condition for Tibet's regaining its freedom.

C = China abandons communism.
T = Tibet regains its freedom.

31. Croatia and Bosnia violate the cease fire if and only if either Serbia or Montenegro incur international sanctions.

C = Croatia violates the cease fire.
B = Bosnia violates the cease fire.
S = Serbia incurs international sanctions.
M = Montenegro incurs international sanctions.

32. Belize's issuing bonds implies that Costa Rica improves welfare, given that El Salvador's preventing arms smuggling implies that neither Nicaragua nor Panama hires mercenaries.

B = Belize issues bonds.
C = Costa Rica improves welfare.
E = El Salvador prevents arms smuggling
N = Nicaragua hires mercenaries.
P = Panama hires mercenaries.

33. If evolutionary biology is correct, then higher life forms arose by chance, and if that is so, then it is not the case that there is any design in nature and divine providence is a myth.

E = Evolutionary biology is correct.
H = Higher life forms arose by chance.
D = There is design in nature
P = Divine providence is a myth.