Logic, First Course, Winter 2020. Week 2, Section Meeting, Handout.

Example 1.

    e = *e*mail notifications are sent

    n = there are *n*ew matching items.

Email notifications are sent only if there are new matching items.

Example 2.

    r = they found that modeled winds at high latitudes can be *r*eliable

    a = an *a*ccurate representation of the actual drivers prevailing at the time can be identified

They found that modeled winds at high latitudes can be reliable if and only if an accurate representation of the actual drivers prevailing at the time can be identified.

Example 3.

    e = *e*veryone sticks with his party

    g = *G*ore would win

    f = the *F*lorida court is able to order state officials to "certify" a Gore victory by the time the electors are scheduled to cast their ballots next week

> If everyone sticks with his party, Gore would win only if the Florida court is able to order state officials to "certify" a Gore victory by the time the electors are scheduled to cast their ballots next week.

Example 4.

a = the *a*larm goes off

c = there's a *c*at outside

t = there's a real *t*hreat for the home

> The alarm doesn't go off if there's a cat outside; and the alarm goes off only if there's a real threat for the home.

Example 5

v = the *v*ariable dips too low

c = the *c*abinets lose power

h = *h*e gets barraged by automatic emails and texts.

> If the variable dips too low or the cabinets lose power, he gets barraged by automatic emails and texts.

Example 6

r = this step is usually *r*equired

s = the item in question is too *s*mall to survive testing

t = too little of it exists

This step is usually required if the item in question is too small to survive testing, or if too little of it exists.

Example 7

l = *l*ocal coaches agree it is often similar to running a mini-marathon

f = *f*our or more games are required

d = *d*oubleheaders are scheduled

Local coaches agree it is often similar to running a mini-marathon if four or more games are required, or if doubleheaders are scheduled.

Example 8

l = you're *l*ying

i = you are the least *i*nteresting person on earth

s = you *s*tate you have nothing to hide.

You're lying or you are the least interesting person on earth, if you state you have nothing to hide.

Example 9

a = *A* showdown will happen

h = the *h*ouse passes its health care bill

s = the *s*enate passes its health care bill

A showdown will happen only if both the house passes its health care bill and the senate passes its health care bill.

Example 10

    r = the *r*ecession ends

    b = businesses have renewed confidence in the economy

One necessary condition for the recession ending is for businesses having renewed confidence in the economy.

Note that if p has the form "subject verb" then "necessary condition for p" has the form "necessary condition for subject verb-ing". That is, the verb is put into a participle form. The same thing happens for sufficient conditions.

Example 11

    a = *a*ll resources are owned exclusively by private individuals

    e = this efficiency is achieved

All resources being owned exclusively by private individuals is a necessary condition for this efficiency being achieved.

Example 12

    v = there being a valuation

    e = decisions are economized.

Example 13

    r = there being *r*eproductive isolation

    d = a population is considered *d*istinct.

there being reproductive isolation is not a sufficient condition for a population to be considered distinct

Example 14

    f = to be able to use it *f*lexibly

    a = it is *a*pplied repeatedly within practical cases.

In order to be able to use it flexibly, it is necessary that it is applied repeatedly within practical cases.

Example 15

    a = the *a*cceptance of emissions caps

    w = the system to *w*ork

the acceptance of emissions caps are not a necessary condition for the system to work.

Example 16

    m = there is *m*ore science

    i = society *i*mproves

More science is a necessary but not sufficient condition for society to improve.

Example 17

    b = you filing for *b*ankruptcy

    c = you *c*orrect course

    a = you *a*lleviating your distress

You filing for bankruptcy is a necessary condition for you correcting course, but it is not sufficient for your alleviating your distress.

Example 18

    b = it is a *b*ird

    f = it *f*lies

> Insert a propositional consequence of "All birds fly".

Example 19

> *h* = you are a *hi*story major

> *t* = you must *t*ake American history 106

> Insert a propositional consequence of "History majors must take American History 106."

Example 20

> *b* = you are a biology major

> *p* = you are *p*ermitted to enroll in this course

> Insert a propositional consequence of "Only biology majors are permitted to enroll in this course."

These is a handout written for Logic, First Course, Winter 2020. It is run on the Carnap software, which is an:

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