ID	4-digit summary	11 PR	10 PnotR	01 notPR	00 notPnotR	P (is possible) = notP is unnecessary	notP (is possible) = P is unnecessary	P is necessary = notP is impossible	notP is necessary = P is impossible	R (is possible) = notR is unnecessary	notR (is possible) = R is unnecessary	R is necessary = notR is impossible	notR is necessary = R is impossible	both items contingent	one or both items incontingent
1	0	0	0	0	0										
2	1	0	0	0	1		2		2		2		2		2
3	10	0	0	1	0		3		3	3		3			3
4	11	0	0	1	1		4		4	4	4				4
5	100	0	1	0	0	5		5			5		5		5
6	101	0	1	0	1	6	6				6		6		6
7	110	0	1	1	0	7	7			7	7			7	
8	111	0	1	1	1	8	8			8	8			8	
9	1000	1	0	0	0	9		9		9		9			9
10	1001	1	0	0	1	10	10			10	10			10	
11	1010	1	0	1	0	11	11			11		11			11
12	1011	1	0	1	1	12	12			12	12			12	
13	1100	1	1	0	0	13		13		13	13				13
14	1101	1	1	0	1	14	14			14	14			14	
15	1110	1	1	1	0	15	15			15	15			15	
16	1111	1	1	1	1	16	16			16	16			16	
16	**number of moduses**	8	8	8	8	12	12	3	3	12	12	3	3	7	8

Modus #s	MATRIX - the 2-items (PR) combinations that define the moduses	Moduses of individual items P, R and their negations	Both contingent or not
	See Chapter 12, Table 12.1	See Chapter 13.4, Table 13.10	

This segment shows the four combinations of two items (PR), and their negations, namely (column headings):

11 = P is present and R is present
10 = P is present and R is absent
01 = P is absent and R is present
00 = P is absent and R is absent

Note descending value from left to right.

The rows numbered 1-16 (under heading ID) refer to the moduses that arise in a 2-item framework (2fw), as all combinations of 1s and 0s are inserted in an orderly manner in the cells. Here, 1 means 'possible' and 0 means 'impossible', note well. The 16 combinations of 1s and 0s are summarized as 4-digits. Note increasing value of this summary from '0000' to '1111'.

In a 3-item (PQR) framework (3fw), The column headings number eight, namely: 111, 110, 101, 100, 011, 010, 001, 000 And the rows number 256, from '00000000' to '11111111'. See Chapter 12, Table 12.3

In a 4-item (PQRS) framework (4fw), The column headings number sixteen, namely: 1111, 1110, 1101, 1100, etc. to 0000 And the rows number 65'536, from '0000000000000000' to '1111111111111111'. See Chapter 16.1 on this new exploration.

Note well that here the modus number means 'possible' (not implying 'present'), and blank means 'impossible' (not merely 'absent'). As clarified in the table on formulae, cells in each of these columns are derived from the matrix to the left. For example: 'P is possible' is true provided that the PR columns 11 and 10 are not both = 0. Note that the first row cells are always 0 throughout the whole spreadsheet, because modus #1 is logically impossible; that is, the modus '0000' (with 0s in the four columns 11, 10, 01, 00) is universally excluded by the laws of thought.

The bottom row counts the number of moduses flagged in the column above, telling us the number of moduses applicable to the form concerned (specified in the heading).

Note that **what was found out and tabulated manually in past research is here mechanically calculated**. The formulae used to calculate each cell are shown in a separate table (with the fields transposed). The results seem to correspond throughout. This will not be repeated in each segment, but is true of all of them.

For the 3-item framework, see Table 13.13

4-digit summary	(P + R) is possible = if P, not-then not R	(P + notR) is possible = if P, not-then R	(notP + R) is possible = if notP, not-then notR	(notP + notR) is possible = if notP, not-then R	(P + R) is impossible = if P, then notR	(P + notR) is impossible = if P, then R	(notP + R) is impossible = if notP, then notR	(notP + notR) is impossible = if notP, then R	(P + R) is unnecessary	(P + notR) is unnecessary	(notP + R) is unnecessary	(notP + notR) is unnecessary	(P + R) is necessary	(P + notR) is necessary	(notP + R) is necessary	(notP + notR) is necessary
0																
1				2	2	2	2		2	2	2					2
10			3		3	3		3	3	3		3			3	
11			4	4	4	4			4	4	4	4				
100		5			5		5	5	5		5	5		5		
101		6		6	6		6		6	6	6	6				
110		7	7		7			7	7	7	7	7				
111		8	8	8	8				8	8	8	8				
1000	9					9	9	9		9	9	9	9			
1001	10			10		10	10		10	10	10	10				
1010	11		11			11		11	11	11	11	11				
1011	12		12	12		12			12	12	12	12				
1100	13	13					13	13	13	13	13	13				
1101	14	14		14			14		14	14	14	14				
1110	15	15	15					15	15	15	15	15				
1111	16	16	16	16					16	16	16	16				
number of moduses	8	8	8	8	7	7	7	7	14	14	14	14	1	1	1	1

MATRIX - t	Moduses of conditional propositions involving P, R and their negations	Moduses of conjunctive propositions involving P, R and their negations

See Chapter 13.4, Table 13.12

NOTE WELL that I here equate "(P + R) is impossible" to "if P, then not R", and so forth.
with DE DICTA conditioning in mind (in logical conditionals, only "connection" is intended).
But for DE RE conditioning, the connection does not suffice: the "basis" too must be specified.
Thus, for de re "if P, then notR" we would have to add "P is possible" to "P+R is impossible" in a formula.
I do not do this extra column here for simplicity, but it is important to remember.
The de dicta / de re distinction evaporates when we get to causative propositions, since both
connection and basis are implied there.

For the negations, just reverse 0 and 1 (except in the first row, where 0s always hold).

For the 3-item framework, see Table 13.15

See Chapter 13.4, Table 13.11

Note that it is not possible to specify an ACTUAL item or negation of item in matricial analysis,
since matrices are based on modal specifications (0=impossible, 1 = possible).
This means that we cannot demonstrate apodosis type argument in this system.
We can only mention an actual minor premise insofar as it is implied by an incontingent one.
That is, if it is impossible it is inactual and if it is necessary it is actual -
but contingent actualities or inactualities have no representation here.
Notwithstanding, we can express the fact that a proposition is contingent:
If both it and its negation are possible, then it is contingent.

For the negations, just reverse 0 and 1 (except in the first row, where 0s always hold).

For the 3-item framework, see Table 13.14

4-digit summary	causation complete m	causation necessary n	causation partial (abs) p	causation contingent (abs) q	NOT m	NOT n	NOT p (abs)	NOT q (abs)
0								
1					2	2	2	2
10					3	3	3	3
11					4	4	4	4
100					5	5	5	5
101					6	6	6	6
110					7	7	7	7
111					8	8	8	8
1000					9	9	9	9
1001	10	10					10	10
1010					11	11	11	11
1011	12			12		12	12	
1100					13	13	13	13
1101		14	14		14			14
1110					15	15	15	15
1111			16	16	16	16		
number of moduses	2	2	2	2	13	13	13	13

4-digit summary	complete necessary causation mn	complete contingent causation mq (abs)	necessary partial causation np (abs)	partial contingent causation pq (abs)	NOT(mn)	NOT(mq)	NOT(np)	NOT(pq)
0								
1					2	2	2	2
10					3	3	3	3
11					4	4	4	4
100					5	5	5	5
101					6	6	6	6
110					7	7	7	7
111					8	8	8	8
1000					9	9	9	9
1001	10					10	10	10
1010					11	11	11	11
1011		12			12		12	12
1100					13	13	13	13
1101			14		14	14		14
1110					15	15	15	15
1111				16	16	16	16	
number of moduses	1	1	1	1	14	14	14	14

MATRIX - t Moduses of the generic forms of causation and their negations

See Chapter 12.2, Table 12.2

Explanations of the formulae:
The intial definitions of m and n in Chapter 2.1 were:
m = if P then R, if notP not-then notR, and P is possible (and therefore R is possible given if P then R),
which = P+notR is impossible, and notP+notR is possible, and P+R is possible.
n = if notP then notR, if P not-then notR, and notP is possible (and so notR is possible given if notP then notR),
which = notP+R is impossible, and P+R is possible, and notP+notR is possible.
For p, q (absolute) the initial definitions are derived (from the relatives) in Chapter 11.3, Tables 11.5 and 11.6
But we later propose interesting direct definitions in Chapter 13.4.

Whence, the defining characters of each generic determination is as follows:
For m, it is the impossibility of 10 (P and notR) - plus the stated positive and uncertain factors.
For n, it is the impossibility of 01 (notP and R) - plus the stated positive and uncertain factors.
For p, it is the concurrence of the three factors 11, 10, 00 (this denies m)
For q, it is the concurrence of the three factors 11, 01, 00 (this denies n)

Thus, for m, both 11 and 00 are 1, and 10 is 0, whereas 01 may be 0 or 1.
For n, both 11 and 00 are 1, and 01 is 0, whereas 10 may be 0 or 1.
For p, all three of 11, 10 and 00 are 1, whereas 01 may be 0 or 1.
For q, all three of 11, 01 and 00 are 1, whereas 10 may be 0 or 1.

It can easily be shown, using these formulae, that:
m (PR) converts to n (RP), since both include that (P + notR) is impossible as their distinctive factor.
n (PR) converts to m (RP), since both include that (notP + R) is impossible as their distinctive factor.
abs p (PR) converts to abs q (RP), since both include that (P + notR) is possible as their disinctive factor.
abs q (PR) converts to abs p (RP), since both include that (notP + R) is possible as their disinctive factor.
This allows us to use the same information twice and save space.

For the negations, just reverse 0 and 1 (except in the first row, where 0s always hold).

For the 3-item framework, see Table 12.4 (absolutes)
For relatives in 3fw, see Chapter 13, Table 13.1

Moduses of the specific forms of causation and their negations

See Chapter 12.2, Table 12.2

Note well that p. q here refer to absolute weak determinations (relatives arise as of 3 items).

These conjunctions are easily derived from the preceding segments.
e.g. If m and n are both 1, then mn = 1, and similarly for the others.
It is also possible to refer the formulae directly to the matrix, of course.

Note that mn, mq, np and pq are all the possible combinations (specific determintations).
mp and nq being composed of incompatible forms are impossible.
Lone determinations are impossible with absolute p, q - as shown in text.

For the negations of mn, etc., just reverse 0 and 1 (except in the first row, where 0s always hold).

For the 3-item framework, see Table 12.4 (absolutes)
For relatives in 3fw, see Chapter 13, Table 13.1 (and other details there).

4-digit summary	m-alone abs	n-alone abs	p-alone abs	q-alone abs	strong causation s = m or n	weak causation w = p or q (abs)	unspecified causation c = s or w (abs)	NOT s	NOT w	NOT c	complete prevention by P of R	necessary prevention by P of R	partial (abs) prevention by P of R	contingent (abs) prevention by P of R
0														
1								2	2	2				
10								3	3	3				
11								4	4	4				
100								5	5	5				
101								6	6	6				
110								7	7	7	7	7		
111								8	8	8	8			8
1000								9	9	9				
1001					10		10		10					
1010								11	11	11				
1011					12	12	12							
1100								13	13	13				
1101					14	14	14							
1110								15	15	15		15	15	
1111						16	16	16					16	16
number of moduses	0	0	0	0	3	3	4	12	12	11	2	2	2	2

MATRIX - t There are no absolute lones

See Chapter 12.2

Moduses of vaguer forms of causation and their negations

See Chapter 12.2, Table 12.2

Note well that p. q here refer to absolute weak determinations (relatives arise as of 3 items).

These disjunctions are easily derived from the preceding segments.
e.g. If m and/or n is/are 1, then s = 1, and similarly for the others.
It is also possible to refer the formulae directly to the matrix, of course.

For the negations of s, w, c, just reverse 0 and 1 (except in the first row, where always 0s).

For the 3-item framework, see Table 12.4 (absolutes)
For relatives in 3fw, see Chapter 13, Table 13.1 (and other details there).

Moduses of the generic forms of prevention & their negations

See Chapter 13.2, Table 13.3

This segment is added here to clarify interpretation of all mod

Prevention has an obverse effect compared to that of causatio
i.e. P prevents R = P causes notR, note well.
This means that the column headings could equally well have l
"complete causation by P of notR" etc.

For the 3-item framework, see Chapter 13.3, Table 13.4 (abso
and on.

4-digit summary	NOT complete prevention by P of R	NOT necessary prevention by P of R	NOT partial (abs) prevention by P of R	NOT contingent (abs) prevention by P of R	prevention (abs) by P of R	NOT prevention (abs) by P of R	notPnotR complete causation m	notPnotR necessary causation n	notPnotR partial causation (abs) p	notPnotR contingent causation (abs) q	notPR complete causation m	notPR necessary causation n	notPR partial causation (abs) p	notPR contingent causation (abs) q
0														
1	2	2	2	2		2								
10	3	3	3	3		3								
11	4	4	4	4		4								
100	5	5	5	5		5								
101	6	6	6	6		6								
110			7	7	7						7	7		
111		8	8		8							8	8	
1000	9	9	9	9		9								
1001	10	10	10	10		10	10	10						
1010	11	11	11	11		11								
1011	12	12	12	12		12		12	12					
1100	13	13	13	13		13								
1101	14	14	14	14		14	14			14				
1110	15			15	15						15			15
1111	16	16			16				16	16			16	16
number of moduses	13	13	13	13	4	11	2	2	2	2	2	2	2	2

MATRIX - tl | Prevention or not | Moduses of the generic forms of causation and prevention by notP of notR

See Chapter 13.2, Table 13.3

ıses

Any determination of prevention

This segment is added here to show that the moduses for notPnotR forms are the same as those for PR forms except that the complete form becomes necessary and vice versa and the partial (abs) form becomes contingent and vice versa (see and compare).

ın

ɔeen stated as:

notP causes notR is the inverse of P causes R (see Chapter 4.2)

notP prevents notR is the inverse of P prevents R and equivalent to notP causes R

ɔlutes)

The negations of these forms are not mentioned here, but follow easily - putting 0 in place of 1 and vice versa as usual (except of course for the first modus, which remains 0 for all forms, being impossible on principle).

For the 3-item framework, see Chapter 13.3, Tables 13.4 (absolutes) and 13.7 (relatives).
Also, Table 14.3.

4-digit summary	connection (abs) by P of R	NOT connection (abs) by P of R	interpretations of the individual moduses	summary	
0			impossible modus		
1		2	only notP+notR possible = both P, R impossible	incontingency	
10		3	only notP+R possible = P impossible, R necessary	incontingency	
11		4	notP+R possible, notP+notR possible = P impossible	incontingency	
100		5	only P+notR possible = P necessary, R impossible	incontingency	
101		6	P+notR possible, notP+notR possible = R impossible	incontingency	
110	7		P+notR possible, notP+R possible = complete necessary prevention by P of R	only strong prevention	mn
111	8		all but P+R possible = complete contingent prevention by P of R	joint s-w prevention	mq abs
1000		9	only P+R possible = both P, R necessary	incontingency	
1001	10		P+R possible, notP+notR possible = complete necessary causation	only strong causation	mn
1010		11	P+R possible, notP+R possible = R necessary	incontingency	
1011	12		all but P+notR possible = complete contingent causation by P of R	joint s-w causation	mq abs
1100		13	P+R possible, P+notR possible = P necessary	incontingency	
1101	14		all but notP+R possible = necessary partial causation by P of R	joint s-w causation	np abs
1110	15		all but notP+notR possible = necessary partial prevention by P of R	joint s-w prevention	np abs
1111	16		all possible = partial contingent causation and partial contingent prevention or no connection	both causation and prevention	pq abs
number of moduses	7	8			

MATRIX - t	Connection or not	Interpretations of the moduses
		See Chapter 13.2, and Chapter 16.2 and its Table 16.1

Connection = causation or prevention

The significance of this list is that it provides us with all the consistent causative possibilities in a two-item framework.

	stats
impossible modus	1
incontingencies	7
strong or joint (absolute) causation	3
strong or joint (absolute) prevention	3
weak causation and weak prevention (abs)	1

