

## ***Prior Analytics, Book I (excerpts)***

### **The Second and Third Figures**

#### **Chapter 5**

26<sup>b</sup>34. When the same thing belongs to all of one term and to none of the other,<sup>1</sup> or to all of each or none of each<sup>2</sup>, I call such a figure the *second*. In it, I call that term the *middle* which is predicated of both and call those of which this is predicated *extremes*; the *major* extreme is the one lying next to the middle, while the *minor* extreme is the one farther from the middle. (The middle is placed outside the extremes and is first in position.) There cannot be a complete deduction in this figure in any way, but there can be a potential one, both when the terms are universal, and when they are not universal.

27<sup>a</sup>4. When the terms are universal, there will be a deduction when the middle belongs to all of one term and none of the other, no matter which one the privative is in relation to, but otherwise in no way. For let M be predicated of no N but of every X. Then, since the privative converts, N will belong to no M. But M was assumed to belong to every X, so that N belongs to no X (for this has been proved earlier). Next, if M belongs to every N but to no X, then neither will N belong to any X. For if M belongs to no X, neither does X belong to any M; but M belonged to every N; therefore, X will belong to no N (for the first figure has again come about). And since the privative converts, neither will N belong to any X, so that there will be the same deduction. (It is also possible to prove these results by leading to an impossibility.) It is evident, then, that a deduction comes about when the terms are related in this way. But it is not complete, for the necessary result is brought to completion not from the initial premises alone, but from others in addition.

27<sup>a</sup>18. But if M is predicated of every N and of every X, there will not be a deduction. Terms for belonging are substance, animal, man; for not belonging, substance, animal, number (the middle is substance). Nor is there a deduction when M is predicated neither of any N nor of any X. Terms for belonging are line, animal, man; for not belonging, line, animal, stone.

27<sup>a</sup>23. It is evident, then, that if there is a deduction with the terms universal, then it is necessary for the terms to be related as we said in the beginning. For if they are otherwise, a necessary result does not come about.

27<sup>a</sup>27. If the middle is universal only in relation to one term, then when it is universal in relation to the major extreme (whether positively or privatively) but particularly with respect to the minor and oppositely to the universal (by ‘oppositely’ I mean that if the universal is privative then the particular is affirmative, while if the universal is positive then the particular is privative), then it is necessary for a privative particular deduction to come about.<sup>3</sup> For if M belongs to no N and to some X, it is necessary for

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<sup>1</sup> “to all of one term and to none of the other” covers these two cases: (1) *MaP, MeS*; (2) *MeP, MaS*.

<sup>2</sup> “to all of each or none of each” covers these two cases: (1) *MaP, MaS*; (2) *MeP, MeS*.

<sup>3</sup> The two syllogisms here described are *MaP, MoS* ⊢ *PoS* (Baroco) and *MeP, MiS* ⊢ *PoS* (Festino)

N not to belong to some X. (For since the privative converts, neither will N belong to any M; but M was assumed to belong to some X; consequently, N will not belong to some X, for a deduction through the first figure comes about.) Next, if M belongs to every N but does not belong to some X, it is necessary for N not to belong to some X. (For if it belongs to every X and M is also predicated of every N, then it is necessary for M to belong to every X: but it was assumed not to belong to some.) And if M belongs to every N but not to every X, then there will be a deduction that N does not belong to every X. (The demonstration is the same.) But if it is predicated of every X and not of every N, then there will not be a deduction (terms are animal, man, raven; animal, white, raven); nor will there be one when it is predicated of no X but of some N (terms for belonging are animal, substance, unit; for not belonging, animal, substance, science).

27<sup>b</sup>9. When the universal premise is opposite to the particular, then it has been stated when there will and when there will not be a deduction. But when the premises are the same in form (that is, both are privative or both affirmative), then in no way will there be a deduction. For let the premises first be privative, and let the universal be put in relation to the major extreme (that is, let M belong to no N and not to some X). It is then possible for N to belong to every X as well as to none. Terms for not belonging are black, snow, animal. We cannot get terms for belonging if M belongs to some X and does not belong to some (for if N belongs to every X and M to no N, then M will belong to no X: but it was assumed to belong to some). It is not possible to get terms in this way, then, but it must be proved from the indeterminate. For since 'M does not belong to some X' is also true even if M belongs to no X and there was not a deduction when it belonged to none, then it is evident that there will not be one in the present case either.

27<sup>b</sup>23. Next, let the premises be positive, and let the universal be supposed in the same way as the particular (that is, let M belong to every N and to some X). It is then possible for N to belong to every X as well as to none. Terms for belonging to none are white, swan, stone. We will not be able to get terms for belonging to every through the same cause as before; it must instead be proved from the indeterminate. And if the universal is in relation to the minor extreme (that is, M belongs to no X and does not belong to some N), then it is possible for N to belong to every X as well as to none. Terms for belonging are white, animal raven; for not belonging, white, stone, raven. And if the premises are positive, terms for not belonging are white, animal, snow; for belonging, white, animal, swan.

27<sup>b</sup>34. It is evident, then, that when the premises are of the same form and one is universal and one particular, a deduction comes about in no way. But neither does a deduction come about if the middle term belongs or does not belong to some of each extreme, or belongs to one and does not belong to the other, or not to all of either, or indeterminately. Common terms for all these are white, animal, man; white, animal inanimate.

28<sup>a</sup>1. From what has been said, then, it is evident both that a deduction comes about of necessity if the terms are related to one another as was stated, and that if there is a deduction, then it is necessary for the terms to be so related. It is also clear both that all the deductions in this figure are incomplete (for they are all brought to completion by taking in addition certain things which either are implicit in the terms of necessity or are supposed as assumptions, as when we prove through an impossibility) and that an affirmative deduction does not come about through this figure, but rather all the deductions, universal as well as particular, are privative.

## Chapter 6 (excerpts)

28<sup>a</sup>10. If one term belongs to all and another to none of the same thing<sup>4</sup>, or if they both belong to all or none of it,<sup>5</sup> I call such a figure the *third*. By the *middle* in it I mean that term of which they are both predicated, and by *extremes* the things predicated: by *major* extreme I mean the one farther from the middle and by *minor* the one closer. The middle is placed outside the extremes and is last in position. Now, a complete deduction does not come about in this figure either, but a potential one may, both when the terms are universal in relation to the middle and when they are not universal.

28<sup>a</sup>18. When they are universal, then when both P and R belong to every S, it results of necessity that P will belong to some R. For since the positive premise converts, S will belong to some R; consequently, since P belongs to every S and S to some R, it is necessary for P to belong to some R (for a deduction through the first figure comes about). It is also possible to carry out the demonstration through an impossibility or through the setting-out. For if both terms belong to every S, then if some one of the Ss is chosen (for instance N), then both P and R will belong to this; consequently, P will belong to some R.

28<sup>a</sup>26. And if R belongs to every S but P to none, then there will be a deduction that P of necessity does not belong to some R (for the manner of demonstration is the same if premise RS is converted, and it could also be proved through an impossibility as in the previous cases). But if R belongs to no S and P to every S, then there will not be a deduction (terms for belonging are animal, horse, man; for not belonging, animal, inanimate, man). Nor will there be a deduction when both are said of no S (terms for belonging are animal, horse, inanimate; for not belonging, man, horse, inanimate; the middle is ‘inanimate’).

28<sup>a</sup>36. It is then also evident in this figure when there will and when there will not be a deduction with universal terms. For when both terms are positive, then there will be a deduction that one extreme belongs to some of the other extreme, but when they are privative there will not be. And when one term is privative and the other affirmative, then if the major term should be privative and the other term affirmative, there will be a deduction that one extreme does not belong to some of the other; but if it is the other way around, there will not be one.

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29<sup>a</sup>11. It is also evident in this figure, then, when there will and when there will not be a deduction, and <it is evident> both that if the terms are related as was said, then a deduction comes about of necessity, and that if there is a deduction, then it is necessary for the terms to be so related. It is also evident that all the deductions in this figure are incomplete (for all are completed by taking certain things in addition) and that it is not possible to deduce a universal conclusion, whether privative or affirmative, through this figure.

— translation by Robin Smith (Hackett, 1989)

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<sup>4</sup> “one term belongs to all and another to none” covers these two cases: (1) *PaM*, *SeM*; (2) *PeM*, *SaM*.

<sup>5</sup> “both belong to all or none” covers these two cases: (1) *PaM*, *SaM*; (2) *PeM*, *SeM*.