NA suffering from a 'Top Down Syndrome'? On a certain Ambiguity still Lurking in the 'Systems of National Accounts'

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ABSTRACT

Although not always so perceived in this way, SNA/ESA represent a dualistic system. This Dualism is found as a reflection of the different nature of the statistical units (SU), for which a lower ("operative") Level and an upper ("institutional") Level are recognized; and similarly dual are their aggregates (industries; sectors) as well as the related transactions and accounts. In order to achieve a certain degree of symmetry in terms of the Market(M) vs the Non-Market(NM) quality of the SU (and, consequentially, of their Output) the "Top down" (TD) approach has been established. In other words: TD, Symmetry and System are concepts that are closely related. Together with any applicable legal reference points, they outline a framework - or a sort of 'System' in its own right.

To evaluate the application of TD with a view to systemic adequacy, practicality and other consequences, the alternative concept of "Bottom up"(BU) is here used. It serves not only as a real option of a different, if complementary method to achieve symmetry: it is a useful catalyst of a range of questions of a more methodical kind. For this purpose, a number of additional criteria have been introduced, which refer to the two main stages of observation as well as to different patterns of theoretical "Allowableness" of either method. On that basis a series of comparisons of TD vs BU across the two Levels are used, as the standard means of evaluation. Beyond mere criticism of present TD practice, that way the analysis extends towards evaluations of a more systemic kind, e.g. envisaging virtual alternatives instead of TD.- Admittedly, however, the present exercise remains in a fully theoretical range.

As the main results a range of systematically necessary feedback has been identified, which foil the straight applicability of TD. At least in one point the application of TD is systematically not workable at the present state of the art. Generally the 'Systems' mentioned earlier have shown to provide very poor support when it comes to dealing with the application of TD in practice, and there is also a complete lack of analytical alternatives more closely based on BU.

CONTENTS

A preliminary remark on **Literature**: in this text references to the discussion of the present topic up to this point are limited at best and focus almost exclusively on the major Systems on National Accounts as issued by the respective international bodies.[1]
Quotations of legal sources ("**§**..") refer to the ESA 2010 if not otherwise indicated.

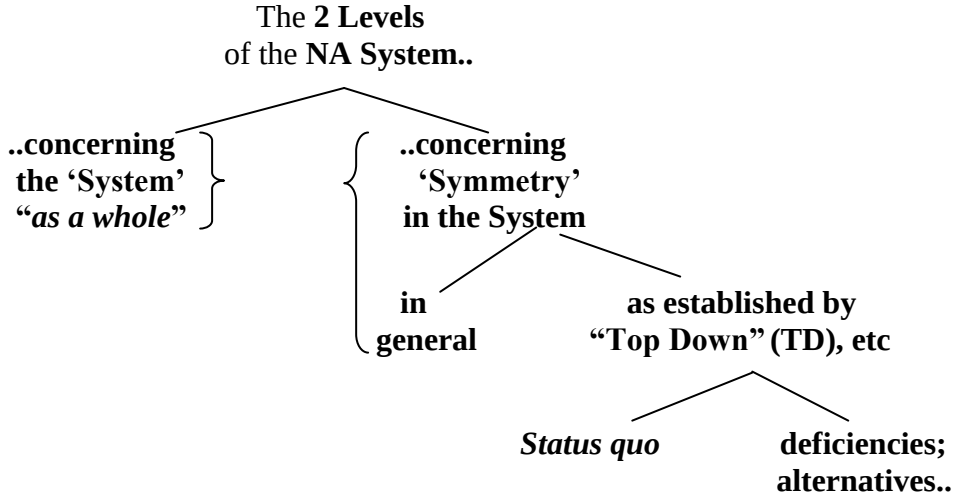
Introductory Overview

> Preliminaries on the Issue and on its Objective; and some related Distinctions

- The Idea: A basically *dual* view of "the" economy is suggested by the major Systems of National Accounts (SNA/ESA..), which affects their conceptive framework in terms of the concepts on Transactions as well as on the related Accounts. To summarize the arguments of this exercise, this duality results from the recognition of Statistical Units (SU) either as "Institutions" (enterprises, government, etc) on the one hand; or as working or "operational" units (establishments, etc) on the other. Although separate in view of their function, these concepts remain closely related and, considering this interconnection, this duality may simply be considered in terms of interacting "Levels". Speaking metaphorically, these irrevocably interlinked Levels represent the two storeys of the System's architecture; explicit or not: their closeness is a guarantee for the overall stability of the structure. Given this starting point it is the primary concern of this exercise to review the respective concepts with a view to their mutual match achieved in terms of a defined interlocking; or in more concrete terms, to ascertain possible deficiencies (mismatch..) that affect those interrelations. However, from this perspective, the discussion quickly exceeds the range of mere deficiencies resulting from inconsistencies and the like, and moves towards an evaluation of the Levels as a sort of "System" in its own right.

- In overview:

[Chart 1]



- There are several possible reference points for this discussion. For the present purpose, it is the setting of the so called "Top down" (TD) approach, which has been established as the "official" one and is, therefore, automatically the centre to begin with. In this capacity it shall not only be considered as a methodological conception but used as a basis of more

[1] As far as mentioned at all, in view of the given data basis "Bottom up" is meant to be no more than an only technical makeshift to achieve the state of the standard accounts. For this approach the descriptions given by F. Bos may be quoted as a particularly good example. Several sources refer to Bottom up in more specialized disciplines like regional, or health accounts.

general considerations on how the related Level architecture comes out in the 'Systems' at large. However, it may be observed at this juncture that in these 'Systems' the discussion on the Levels *as such* is extensive enough but, at the same time, there is only poor if not very poor advice on how these Levels should eventually be integrated. It should, therefore, be legitimate to look a bit deeper into this gap, to evaluate the meaning of what is eventually missing, and even to try alternative concepts of matching "Levels".

- Terminology:
  -- "System" and "Symmetry"
    - o First, a reservation must be stated for the use of the term "System". It is, of course, not the intention to engage in a philosophical discussion on the notion *as such* but it is simply used in many occasions when typical requirements or consequences of the present context are at issue. By contrast, the term is also used in the more concrete meaning of "The System of National Accounts" (SNA /UN/; ESA /EU/) - usually in plural: the 'Systems'.
    - o The mentioned "match" (mismatch) of the Levels comes close to the point of internal "Symmetry" of a system, which sounds a bit theoretical but in view of the Inter- Level relations it is still worthwhile. In this particular context, it cannot mean a sort of "1:1" match, which is out of the question alone owing to the mentioned "1: n" structure of the underlying populations of "Statistical Units" (SU). In such more narrow meaning Symmetry becomes closely allied to notions like Consistency, Co-extensiveness and Congruousness, all together involving more formal if not numerical or monetary interpretation. However, in the forthcoming text, the above concepts are used without strict distinction, although slight differences in meaning might be recognized.[2]

-- At this point a few further conventions on the terminology might be mentioned. Most important among them is the distinction by reference to the reference Levels themselves:
  - o between the Levels of observation (Inter-Level),
  - o within one and the same Level (Intra-Level, if affected by different observation)

Another distinction of some interest aims at the characteristics of the SU:
- o characteristics of the SU *as such* (i.e. in their capacity as units of observation & enumeration): characteristics *inherent* in that SU……
- o characteristics of the SU capable of an evaluation separated from the former (e.g. Output, etc.): characteristics *adherent* to the SU……

} [3])

> Conception of the present Exercise

- As to the overall Approach one might from the beginning concentrate on certain more or less well-known (or at least suspected) points of weakness of the above "architecture", and only from there go into the detail. However, for principal reasons this approach was deemed inadequate, and it was decided to deal with the present issue under more *systemic* auspices, striving for a more complete analysis that would be based on "Inter-Level relationships", but actually with a view to an ultimate "comparison of all the

[2] Despite its extensive meaning, the term "Symmetry" will subsequently be used less often than the previously mentioned terms that carry a less sophisticated but more concrete meaning.- **A**symmetry, **In**consistency, **In**congruousness (here used most) are the opposite notions of what would be aimed at.

[3] "primary" (for inherent)" vs "secondary" (for adherent) would be alternative terms (exceptionally used in this Text).- The *inherent* characteristics resist any addition or amalgamation. Therefore, under **BU** the inter-Level mechanism works for **ad**herent characteristics only but not for the SU "*as such*" (=**in**herent..). Output is adherent, but not its relation to costs ($^{>}/_{<}$ 50%), which is - by definition - inherent.

comparisons" possible in this framework. This is tantamount to the denial of any *a priori* primacy of one Level over the other. In the same vein, for the SU of each Level their primary ("inherent"; see next to that) characteristics must be distinguished from more secondary ones, which will become more important in the end only (Output, etc).-

- Slightly anticipating applications explained below, overall the Exercise concentrates on two main features:
  -- the basically dual set up by the "Levels" of SU, as mentioned; and
  -- the ubiquitous distinction by "Market"(M) vs "Non-Market"(NM)
  It is these two points (2 Levels; M/NM) in combination(**!**), that involve the greatest potential of divergences and thus represent the very root of the problem at issue here. It is in this capacity that they are suited for questioning the existence of a System-wide inter-Level Symmetry (as a theoretical quality of the System's status), or a subsequent harmonisation (as a target to be achieved in practice), respectively.
- For the methodical treatment of this dual, the more action-related notions of Top down (TD) vs Bottom up (BU)[4] are then added, both of them notions on the Sequence of identification and, eventually, of incorporated additional effects on the other Level.
- On that basis most of the discussion takes place in the "2-Levels ×TD / BU"-Framework. For illustration a set of rather elaborate, coherent Diagrams is provided from which the interesting points can be learnt in terms of *status quo* as well as of the ensuing procedures (Charts **1 - 8**; landscape formats found in the attachment).
- Related topics that would have gone beyond the present scope include, *inter alia*: the determination of the M-/NM- characteristic by the classifications (the "exclusiveness" issue); Social Transfers in Kind (STiK; as related to the M-/NM-distinction); and any recommendations on consequential remedy *de lege ferenda*.

> Major Outcomes:

Typical questions, on which answers may be expected, are as follows:

(i) Are there (A-)Symmetries which affect the underlying SU alone (rather than Output, etc. also /cf above, on the primary vs secondary distinction/)?
(ii) What is the status of In-Congruence when comparing each Level as established *per se* (e.g. as observed as a starting point)?
(iii) Which advancements are achieved when the comparison is based on the existing (or on some alternative) regime of the Inter-Level connections ? And which deficiencies remain after all?
(iv) What about the so called "Non-Market Sales", as a very special point? What could, or should, there be done in addition?
(v) Are dual Levels a systemic necessity at all?

On each of these questions we will attempt to find answers.[5] However, presumably most interesting is the (iii) alternative: while it is the 'Systems', which by means of positive regulations try to forestall an originally imminent incongruence, a discussion on a similar (or any other) solution for any alternative is still outstanding.

To shortly anticipate the main outcome: for any reference situation considerable deviations arise whenever elements of NM nature (LKAU; Output) are assumed under a MISU; and only a bit different under a NMISU also (NM-Output in MLKAU; there with the most serious incompatibility in one special case).

[4] **§3.16**; BU is not mentioned at all in any of the Manuals of the 'Systems' (!), a point further commented upon in the forthcoming Sections.
[5] Referring to the forthcoming "systemic" Diagrams (Charts **5**, **6** & **7**),in particular.

Congruence in the Systems (ESA; SNA): a little Stocktaking

> "Congruence" at large:

It should be clear without special reservation that this is not the place to repeat in detail what is found in the 'Systems' on SU, Levels, etc. Reference to these sources is made as appropriate and, in particular, when these would not seem conclusive or complete. And with reference to the above preliminaries it may be repeated without further evidence that a certain and well defined degree of "Symmetry" ("Coherence", "Consistency"..) is a general requirement of any "System", even if not explicitly distinguished in the SNA family. These notions apply to a variety of references (definitions; classifications, etc.), in all cases involving something like an "interface".

- As mentioned, subsequently the term "Congruence" is most frequently used for the purposes of this text. In the given circumstances it is not automatically achieved but requires the observance of different rules and/or approaches: these may be considered *de lege lata* (as is the case here), or *de lege ferenda*, if the means to achieve (or improve) that target are the point.[6]
- Bearing this in mind, we shall now turn to the SNA proper, starting with a short review of the main reference points on the *present* problem. In the 'Systems', the points to which Congruence is a pertinent matter are easily quoted:
  -- Statistical Units (SU) above all, yet in their capacity as producers only[7]
  -- Output & (output related) Costs
  -- Classifications (Activities; Goods & Services)

  Whereas major other subjects of the Accounts can here be left out (Gross Fixed Capital Formation; Transfers; Financing; Stocks of any kind /although benefitting from related clarifications, too../)

> A **Tool kit** of concepts:

Next, we aim at presenting a more complete collection of the notions inherent in the abovementioned subjects, and needed for purposeful analysis:

- Concepts more or less familiar (not requiring much explanations among NA experts..):
  -- SU (as an entity of observation: Institutional SU /ISU/ vs Local kind of activity Units /LKAU; = "Establishments" = the "I-O" type of SU /) [8]
  -- Output (gross; net /gross output net of related production costs: Value added [VA])
  -- Level (hierarchy of SU, representing either a "1:1" or a "1: n" pattern); further on, the Level of the LKAU is called Level **I**; and for ISU: Level **II**
  -- Top down (TD), as the main "Regime" to achieve Symmetry, by going from **II** to **I**
  -- Market (M) vs Non-Market (NM), as applicable to SU as well as to Output; and accordingly MISU vs NMISU; MLKAU vs NMLKAU.- In this context here also used notions are the "break even point" (i.e. the "50%" threshold); the "mixture" of M/NM: and the "dominance" in the "n:1" situation.
  -- Classifications; symmetry is there needed between major output and activity, and (though less direct) between the activities of ISU and their LKAUs.[9]

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[6] Surprisingly enough, with the exception of "consistency" any mention of the above central concepts is hardly found in the SNA family. In particular the discussion on the interfaces existing on the part of the SU, as addressed next, is remarkably short, thus leaving room for the present issue.

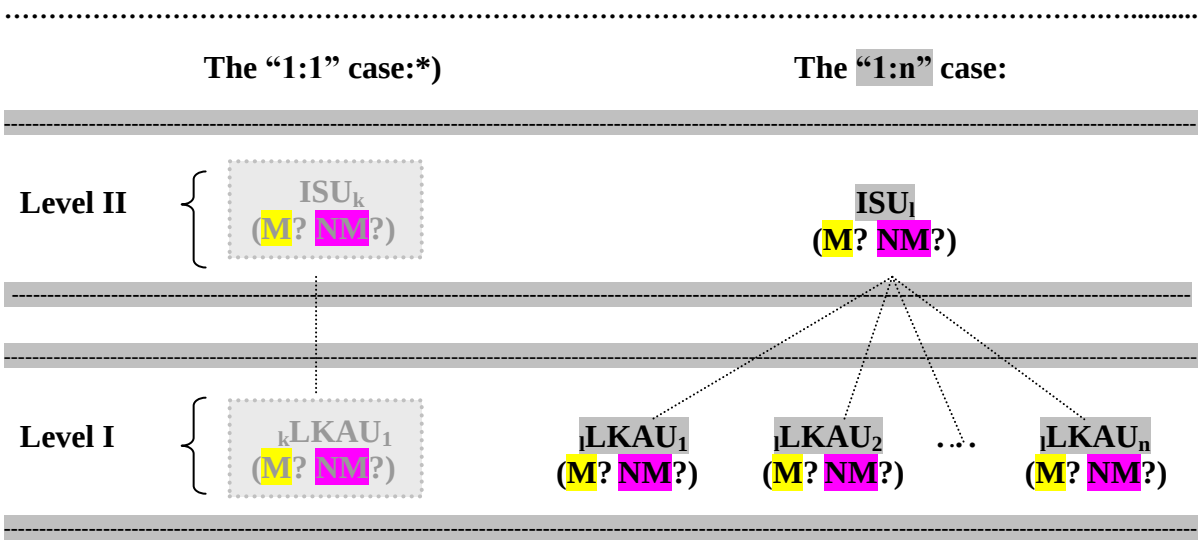
[7] Apart from Private Households in their capacity as consumers (or only as consumers..)

[9] The scope of the VA of an LKAU is not automatically compatible with that of its ISU for various reasons. One of them is the "Overheads problem" (cf. the older concept of "Census VA"); this point is addressed in more detail later on.

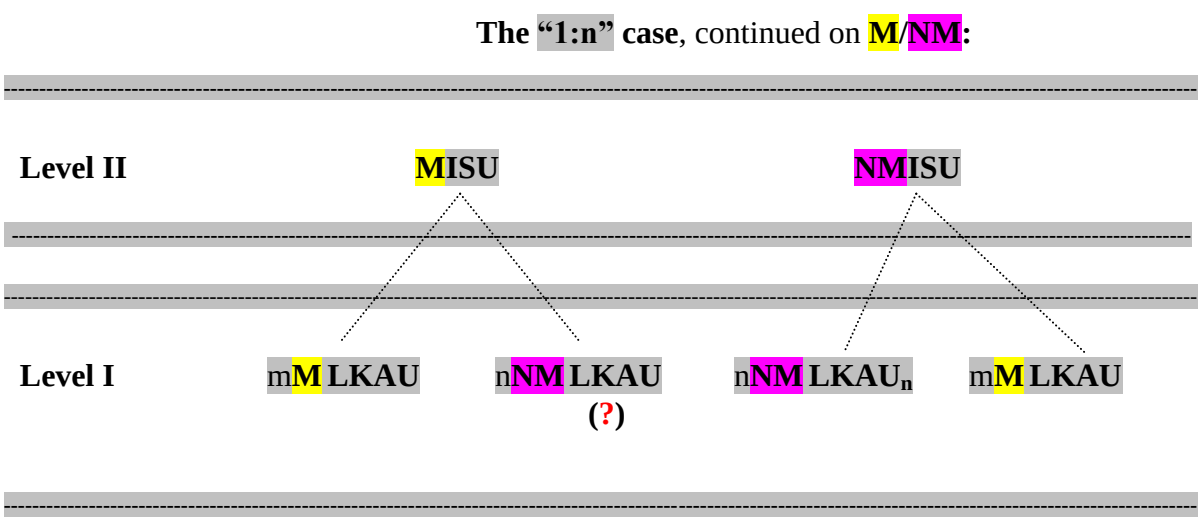
[9] ..disregarding an eventually built-in "exclusiveness" of the M- or the NM-Quality. That way the normal rules on the relations between the Levels could be superseded.

Evolving the Basic Patterns: The universal Level Structure

(a) The starting Population



(b) ... continued for M / NM



***)** The 1:1 case is not relevant for the present discussion focussing on (In-)congruence.
"**?**": allowableness of such SU under MISU?

For (**c**) see continued Chart in the attachment

==========

These concepts altogether amount to the very first, basic and everlasting structure as shown in the Diagram on the Evolvement of the universal "**Level Structure**" (Chart **2** (a) & (b)). This is to show that under a given ISU, a variety of LKAU may be found which are not automatically of the same M- vs NM-kind as that ISU, at least at first sight (i.e. before any subsequent intervention). Accordingly, the respective decision on the M- vs NM-quality of an SU can be made only on the basis of reference to that SU's "**Output: Cost**" relation (an inherent characteristic belonging to the SU proper; / **§§3.26** & **3.32**/). However, similar differences to those above found for the SU in terms of M vs NM may come in also at the **Output** Level (details are shown in a Diagram continuing Chart **2** but shown in the attachment **:** "**The 1:n case, …extended towards Output**)".

- To that rather familiar range, certain <u>more specific</u> – albeit less obvious - concepts are added, which focus mainly on the operational detail and are even of an *ad hoc* (..beyond SNA) character and may, therefore, require some explanations, as follows:
  -- further on the TD issue: TD vs <u>Bottom up</u> (BU) as the counterpart-determination necessary in any System with hierarchically arranged "Levels"; immediately related to this is the notion "Allowableness" (viz TD vs BU; cf below on "**A**");
  -- "<u>*a prima vista*</u>" (***p.v.*)** vs "<u>*a seconda vista*</u>" (***s.v***) as the basic stages of the Sequence of statistical observation in a Level context: while the former would not exceed the given Level the latter exactly involves such reference. "***p.v.***" is further subdivided by (sub-)steps of observation on the same basis:
    (i) *ab ovo* ("yes, it is an SU..")
    (ii) specification of its nature in terms of "Level" ("it is an ISU" vs "..an LKAU)"
    (iii) specification in terms of **M** /**NM** (based on the "%" threshold; and taking into account ESA **§3.38**, in particular /which is a crucial cornerstone; cf Charts **7** & **8**, shown in the attachment)

[Chart 3]

……...……

Inter-Relations of "Sequence" (*p.v.* / *s.v.*) and "Regime" (TD vs **BU)**

	before "Regime"	**BU**	**TD**
p.v.	**I; II**	**I**	**II**
s.v.	**--**	**II**	**I**

A certain tautology of Sequence and Regime is easily concluded, as follows:

BU **I** = ***p.v.*I** TD **II** = ***p.v.*II**
BU **II** = ***s.v.*II** TD **I** = ***s.v.*I**

However, before the decision on (or the application of) a Regime ***s.v.*** cannot be quoted at all; and depending on the respective context, the indication of the Stage of Sequence is in certain places more instructive, whereas in others it is the indication of Regime; both may be helpful when indicated side by side.

……

All three stages coincide in "***p.v.***" when to it a broader meaning of "*ab ovo*" is assigned, viz qualification at the given Level (usually **I**), regardless of any effects from the other Level. "Sequence" vs "Regime" are in part overlapping, which needs some clarification (Chart **3**);

-- the "MISU" vs the "NMISU" contexts, which comprise all the LKAU assembled under either of the respective ISU; the former represents an "M-context", the latter an "NM-context". The "Contexts" in this sense constitute a major referential framework in the analysis below;

-- feedback, as a major need counteracting the normal working of TD in the given M- or NM-context, respectively.

- As a peculiarly "dual-faced", intermediary concept the Non-Market Sales need special attention: [10]
  - -- even if there is no other output they form a sufficient basis to recognize an NMSU;
  - -- the mentioned **§3.38** implicitly assumes a sort of pre-existence of them;
  - -- even if *as such* more globally identified at Level **II,** their appearance must be evaluated at the more detailed Level **I**;
  - -- there may be special interest in learning about their virtual ***p.v.*** existence (in a MLKAU) even if they are later on to disappear *as such* (as effected by **§3.38**).

Methodologies

With reference to the above conceptual foundation the actual methodologies can now be outlined. On the whole, everything seems to boil down to a mode of comparison, viz a comparison of primarily more or less different ("incongruent") outcomes on a categorically similar subject. However, this is true only under the perspective of the ultimate "comparison of the comparisons". The entire edifice remains to be largely based on the concepts of the two Levels existing side by side (or, more operationally: one upon the other..). Accordingly, the approach firstly taken towards comparison is equally straightforward, viz to review the various SU involved, which at Level **II** are no problem at all, but are rather varied at Level **I**. In addition to the definitions, for the latter point the methodology must comprise ways and formalities of procedure to duplicate the Sequence at large and the individual Steps, as presented next.

TD and BU are the "Regimes" which determine the Sequence according to which the Levels are to be taken up (therefore: 2 "Stages", in principle), and ultimately to be compared. To each Regime a certain order of Stages is coordinate in terms of ***p.v.*** vs ***s.v.***: the former reflects the original situation at the respective Level, and the latter what comes out when the respective Sequence has been completed (Chart **3**). Both these references are, almost by necessity, the permanent companions of all analytical considerations and presentations of this exercise, while in particular the ***p.v.*** stage of Level **I** is *as such* hardly found in the 'Systems'.

The overall interrelation of Regimes, Stages and Levels is again shown, but in more detail, in the Diagram below (Chart **4**). In principle, what is compared is either the SU or their Output.[11] Naturally, a comparison on SU can apply to Level **I** (LKAU) only, and would thus show whether the Regimes have any impact on the number or the quality of the SU. Due to

[10] In principle, they meet the characteristicity requirement of the output of an NMSU, which may even become relevant for the present investigation when it is about the M vs NM quality; it also applies to the measurement derived there of Social transfers in kind (STiK).- In this text they are termed "Non-commodity Sales" (**NCS**), as a reminiscence of the SNA 1968, which seems to have introduced this as a separate transaction for the first time.

[11] In the Diagrams symmetry (congruence, equivalence..) is symbolically indicated by "=", whereas "≠" indicates the contrary.

[Chart 4]

			REGIME			
			BU		TD	
Subject compared →			SU	Output	SU	Output
STAGE	*p.v.*	.... step 1 ..... (“*ab ovo*”)	**I**	--	**II**	--
		.... step 2 .... (**§3.38..**)	**I**	--	**II**	--
		… step3 …	**I**	**I**	**II**	**II**
	s.v.		--	**II**	--	**I**

the rules determining the latter, the outcome may well deviate from the Output side (e.g. dominance of MSU vis à vis a dominant NM-Output /i.e. the inherence vs the adherence issue, asmentioned). Clearly more interesting is the comparison for Output, resp. Output net of Costs (“VA”; see above..). However, this presupposes that information on each SU’s Output (and even its VA) is available, and on whether it is M or NM, which may both be a problem at Level **I**.- The appearance of NCS may be a source of further divergence, too, in that the TD version would not tally with the BU based one.

Having clarified all this, for the actual comparison the Levels may be addressed on the basis of the Regimes and their associated ***p.v.*** vs the ***s.v.*** distinction. This may be done either for each Level in its own right (Intra-Level comparison), or involving either of them in combination (Inter-Level comparison). As to Level **I**, the comparisons are made in terms of the total outcome of all SU together (∑LKAU), although it is the situations of the individual SU which in the end determine the Totals.

Level-internal (“Intra-Level”) comparison:
This applies to a given Level, yet differing by the regimes applied (TD; BU), and with a pattern of stages as follows:

Level **I**, toward TD: ***p.v.*** LKAU : ***s.v.*** LKAU [≡ ***s.v.*** LKAU : ***p.v.*** LKAU]
Level **II**, toward BU: ***p.v.*** MISU : ***s.v.*** MISU [≡ ***s.v.*** MISU : ***p.v.*** MISU]

Only two variants arise. TD and BU are involved at equal terms, but always on the same Level, which means that either ***p.v.***Level **I** is compared with its TD based ***s.v.*** counter-part (**I** *ex* **II**); or it is ***p.v.***Level **II**, which is compared with its BU based ***s.v.*** counter-part (**II** *ex* **I**). Accordingly, the cycle is always ***p.v.*** compared with ***s.v.***.

Level-external (“Inter-Level”) comparison:
In this case both Levels always are involved yet their different nature is maintained throughout. Apart from SU as such, the subjects are the same as before (Output; VA). The comparison meets the following pattern of 4 different versions :

before Regime.. : ***p.v.*** MISU : ***p.v.*** LKAU [≡ ***p.v.*** LKAU : ***p.v.*** MISU]

II → I - TD… : ***p.v.*** MISU : ***s.v.*** LKAU [≡ ***s.v.*** LKAU : ***p.v.*** MISU]

I → II - BU….: ***p.v.*** LKAU : ***s.v.*** MISU [≡ ***s.v.*** MISU : ***p.v.*** LKAU]

I / II TD & BU : ***s.v.*** LKAU : ***s.v.*** MISU [≡ ***s.v.*** MISU : ***s.v.*** LKAU]

This pattern covers any application of TD vs BU and, accordingly, every combination possible of ***p.v.*** and ***s.v.*** as long as it is contained in the Inter-Level situation.

With the cycles of references presented above, the methodology concludes with a complete review of the analytical possibilities. Covered are more or less all the options available at least in a more technical sense, and ready to evaluate the existence or the degree of Congruence achieved in each case. [However, for a realistic or up to date account of what can or what might be done the possibility of legal intervention or other restrictions of similar kind must be taken into consideration, going beyond the scope of mere methodology.]

Inter-Level Relationships under Scrutiny: Regimes on the "Regimes", and a Synopsis

Given the variance at the said Levels appearing in terms of M vs NM an outcome fully symmetrical cannot be assumed automatically. To deal with such complications or even to achieve full symmetry, a variety of techniques may be put forward, which boil down to the application of an exclusive "TD", or "BU" respectively; or to some purposefully organized mixture of them.
The prescription to apply either TD or BU, and how to do this in practice, represents a strong methodological determinant. For its far-reaching consequences on the steps of identification as well as on the ultimate outcome it is here called "*Regime*" (eventually superimposed on the original approach chosen of TD or BU, which involves methodical alignment anyhow /cf the "tool kit" above). Technically speaking it functions by way of strict enforcement or, less rigorously, by allowing (or not allowing) certain degrees or modalities of application of TD vs BU. Accordingly, several versions of this kind can be recognized, and in the first instance even without explicit regard to the SNA etc. Running through the whole spectrum of variation a variant suited for practical use should be included, as follows:

- isolation (**I ; II**): This is a rather theoretical if not hypothetical concept in that each Level (or each Level's SU, if more closely linked to actual statistical observation) would be dealt with *as such*, i.e. without any reference to the other Level (or that Level's SU, respectively); in other words: this coincides with the "***p.v.***" situation (for the steps of ***p.v.*** see above), but stopping at the given Level it is neither TD (**II**) nor BU (**I**). With respect to the individual SU (ISU; LKAU) its evaluation would be based on that SU's characteristics alone, which might not seem sufficient to find its place in the SNA. However, and apart from the interest in having a reference of this kind available, there are still arguments for such version in more operational terms - mostly tantamount to necessities of some feed back from the given if "isolated" Level (cf below..).

- SNA, ESA: As a matter of course the standard 'Systems' must take some position on, if not provide a solution for, the present problem. As far as an explicit indication is

found, this is limited to TD (**§§3.16** & **3.38**, which are rather clear for the market ("M") sector but not applicable for the rest of the economy). More on these implications (as well as on eventual ambiguities) will have to be discussed.

- "*Status quo*" (**I**? ↔ ?**II)**: This category includes the versions found in the individual countries as the outcome of their endeavour to comply with what is stipulated by the 'System(s)'. Unfortunately, detailed information on the respective national practices is difficult to find.[12]

- A Cycle by different "Allowableness" ((**A**); applicable to Levels **I** and/or **II**): The straightforward if not extreme solution is either TD (100% TD vs 0% BU); or the other way round: 100% BU vs 0% TD. Having the choice of a "Regime" at one's disposal there are many more alternatives available to a simply exclusive TD Regime, or BU, respectively. Degrees of application of either may vary, with combinations or with the mixture taking account of SU or Output, etc. Apart from going through merely theoretical possibilities different variants of this kind may be devised as a reference of possible alternatives or to better contrast different evaluations. Beginning with the above extremes, such Regime first overlaps with the previous approach ("isolated.."); whereas the more or less deviating versions may come closer to actual "*status quo*"-solutions... Altogether 4 major versions of "**A**" may be put forward, which appear to comprise what is stipulated in the 'Systems' as well as what is represented by the "isolated" versions or what is otherwise conceivable in the present context, as follows:
  - **A**(a): complete application of TD. If without any regard of the actual situation of the "Output **:** Cost" proportion this Regime would boil down to a consistent application of the same proportions as found at the ISU-Level (a sort of "trimming"). An adaptation more sensitive to the individual LKAU's circumstances may be more attractive, however;
  - **A**(b): application of **A**(a) as well as **A**(d) (see below) side by side, i.e. without any harmonisation or unification of the respective differences there arising from the beginning;
  - **A**(c): in this case only the NCS would be taken into account as a determinant requiring treatment in its own right, and with **I** → **II** feed back as a consequence:
  - **A**(d): application of BU; in combination with a primary TD, this variant takes full account of any feed back requirements.

- The above Synopsis of Regimes ("Regimes on the Regimes"..) encompasses the entire range within which the various evaluations provided by the official 'Systems' (as well as some others, rather complementary ones) have their place. Enriched with the concepts and criteria enumerated previously, it not only provides a methodical framework suited to trace (In-)Congruence: it even tends to evolve into the much wider concern of the *dual* Level System, viz whether (and how far) each of them is also interesting *in its own right* and should, therefore, be maintained and dealt with *as such*. However, taken by itself, none of the above approaches alone is suited to learn about their interaction nor to arrive at judgements on Asymmetry or Incongruence in particular.

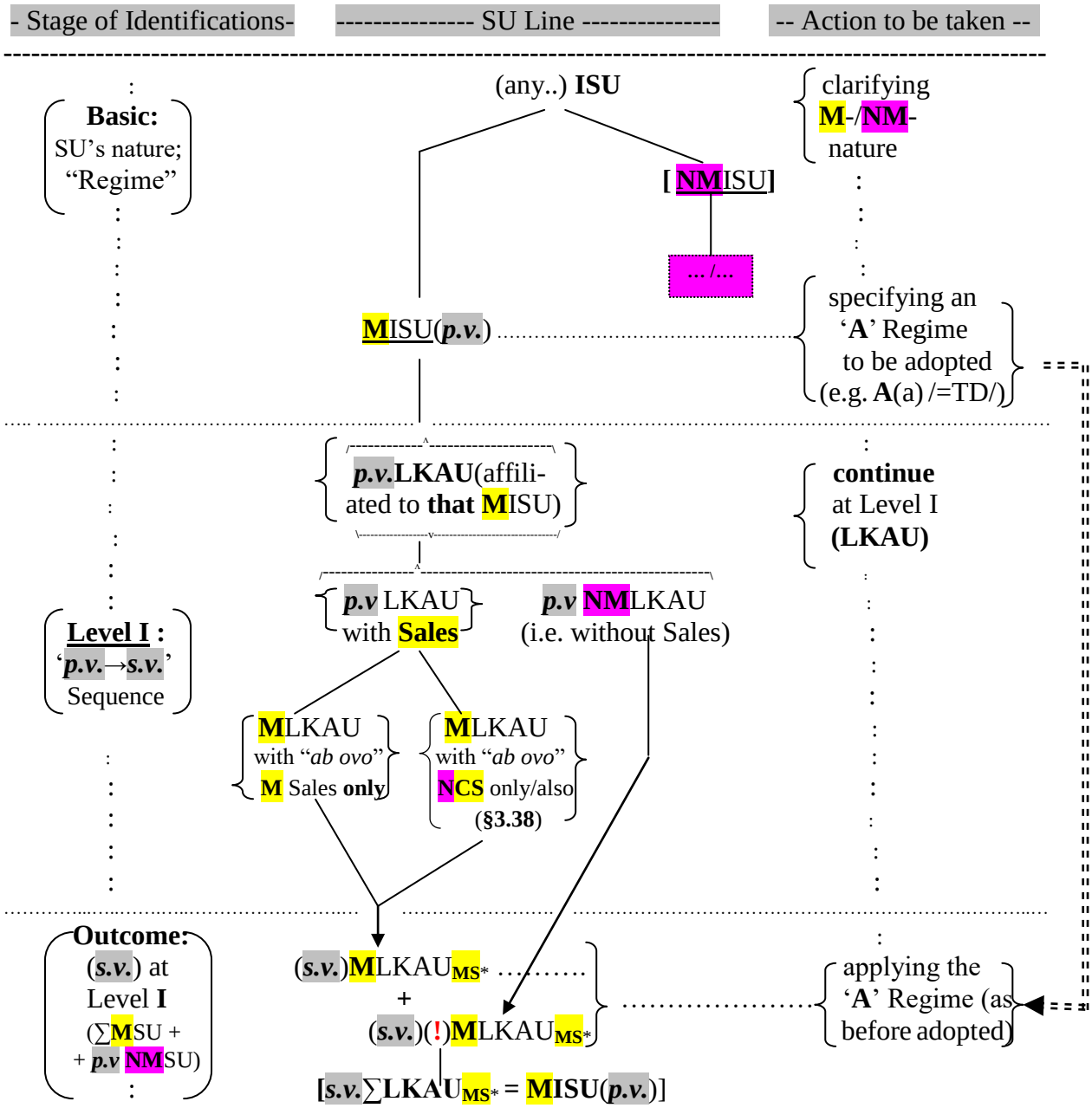
> On that basis, how should Asymmetries or Incongruence actually be detected? To do this, several steps are needed in turn, each well placed in the above Frame:

[12] An inventory of this kind would, e.g., be available in Austria.- However, as it is not always so clear what is actually required (or better to say, what is really meant) by the 'Systems' in this respect, an inventory of this kind would in any case suffer from a certain variation.

[Chart 5]

LEVEL I : LEVEL - II RELATIONSHIPS – ILLUSTRATED AS A 'DECISION TREE':

A 'TD'-FRAMEWORK EXEMPLARILY APPLIED TO A MISU-CONTEXT



resulting **Inter- / Intra-Level (I; II)** .. under MISU

- ***p.v.* II : *s.v.*II** ..... : 'A'(a): "=" ; 'A'(b); (c); (d): "≠" [under NMISU: "≠"]
- ∑***s.v.* I : *s.v.* II** .... : "="
- ∑***p.v.* I : *s.v.* II** .... : "≠" if ***p.v.*** Level **I** shows a mixture of **M** / **NM**
- ∑***p.v.* I : ∑*s.v.* I** ... : 'A'(a): "≠" ; 'A'(b); (c); (d): "=" [under NMISU: "="]
- **Feed back** (FB) ...: **I → II** (for composition of Output /M-NM; NCS)

==========

- definitional: these concern stock taking of the concepts used at each Level and, on that basis, checking their compatibility; applicable to -
  -- SU
  -- Output etc.
  The point is all the more critical if the statistical basis is defective.
- numerical: following the above order, comparison in terms of SU first (viz number and nature/composition of the LKAU), and Totals of Output etc next (for ∑LKAU vs ISU).
- procedural (aiming at Deficiencies):
  -- Asymmetries"/Incongruence may not always be immediately on the surface but rather hide in incongruent or incomplete information; therefore, it might make sense to start from suspected or known concealments rather.
  -- Deficiencies may also concern feedback.

Approaches of Identification Revisited, and "Comparison of the Comparisons"

> Continuing the foregoing short annotations on the actual approaches a more complete account on related steps in terms of concept and necessities is now attempted. For this purpose a "tree" may serve as an appropriate catalyst, yet rather applying than exceeding the scope of the concepts and terminologies previously introduced. Reference to the SNA etc as well as certain points apart from the SNA will be found.

> Decision Tree: Exemplarily here presented is a TD version applicable to a MISU Context A(a)). Analogous versions could be shown for the other variants possible under the "Allowableness" options ('**A**'(b)-(d); see above), applying BU and deriving NMISU contexts;[13] for the latter only some summary conclusions are given below.

- Chart **5**: After some "candidate" SU has been recognized as an "ISU" the next decision is on its nature in terms of M vs NM. If it is of the latter kind a rather different sequence of further steps would follow (mainly due to the almost general allowableness in the NM environment; not further pursued here); whereas continuing with "M" the scope of that ISU's Output is automatically determined by its Sales.[14] The next decision refers to which Regime (in terms of '**A**') is to be applied. As presently **A**(a) has been chosen this is tantamount to TD. The rest happens only at Level **I**, requiring analogous scrutiny on the M vs NM nature of those SU (LKAU). There, at least at ***p.v.***, 3 types of SU may occur:
  (i) MLKAU with M Sales only
  (ii) MLKAU with NM Sales only, or in addition to some M Sales
  (iii) outright NMLKAU, without any Sales
  Only (i) is really simple; for (ii) **§3.38** applies (irrespective of the composition or the relative extent of those Sales (in terms of M vs NM); whereas on (iii) the situation is less clear: if not *a priori* eliminated as being ancillary, it would either be interpreted as a complete "loss maker" yet still remaining in the MISU context[15]; or as an SU to be transferred to a suitable NMISU context. Overall, the Total of those LKAU (as far as remaining..) corresponds to the original MISU, and this as being congruent: (***s.v.***)∑MLKAU = (***p.v.***)MISU.- The other **I : II** interrelations by Levels can be derived similarly, as shown at the bottom of the Diagram.

[13] This would obviously go beyond the concern of the present exercise, which is to show the principles rather.
[14] Here disregarding minor output "on own account"
[15] Interestingly, issues of this kind are touched upon in Table 3.2 of '95 ESA but not similarly so in ESA 2010.

- For the NMISU contexts M- as well as NM-LKAU are equally allowed: only **§3.38** remains as a restriction, which requires adjustment of "*ab ovo*" NCS to be shown as M even there. However, at Level **II** the identification by composition of the respective Sales may not immediately be clear (if there possible at all) so that resorting to the lower Level becomes necessary in any case (the "NCS Feedback").
- If a partial or even a total BU version would be envisaged, an additional clarification of the respective "Regime" (e.g. **A**(c)) is required, for integration into reference Level **II**. This is due to the probably more extensive use of Feedback (**I → II**) rather than the blunt adoption of the Level **I** outcome. Such choice is likely to be determined at (or for) the ISU Level, and might relate to the handling of SU with different M- vs NM-nature, and how these would have to be aggregated to maintain the overall congruence. Therefore, the cycle cannot start from Level **I** completely independently but, in this case, would need feedback "from ***p.v.*** above", too (cf A(d)).

> The above discussion followed an operational route and can now be complemented with a more systematic and more comprehensive presentation in order to lead us to the above announced "comparison of the comparisons" (Charts **6** & **7**, shown in the attachment). There, to begin with, the various components of Level **I** needed for the comparison with Level **II** are assembled, separately distinguishing the outcome by TD vs that by BU. For their particular interest, the adjustments needed by law or suggested otherwise are also shown separately ("..removed").

- **M**ISU context: the **§3.38** adjustment (saying, for short: any Sales = M-Sales) would immediately apply if the concerned SU is ***p.v.***MLKAU. But this is less clear if that SU as a whole is ***p.v*** NM: there an adjustment (à la Table **3.2** of ESA 95) would only take place in TD (i.e. the SU become M) but not so in BU, because to a NMSU (as so observed in BU) that rule does firstly not apply. Accordingly, we are dealing with an Asymmetry (**!**) between TD and BU in this case.
  The situation would be similar for other NMLKAU (i.e. those *without any* Sales): they would remain to be included in a BU version but not so in TD. The reason is the basic convention in that total Output of TD is limited by its Sales but this is not necessarily so under BU; therefore: $\mathbf{II_{BU} \neq II_{TD}}$, which means another "Asymmetry" between TD and BU (**!**). Of course, the consequences can be avoided by further rules on due adjustments, but at the price of additional Feedback only.
- **NM**ISU context: there the situation on adjustments is easier, because any appearance of NMLKAU at the BU basis can 1:1 be transferred to TD. However, one of the above inequalities ("Asymmetries"**!**)still holds there, too, as MLKAU (**§3.38**) is still included.
- The latter point is particularly interesting when it is about some methodological alignment in terms of inter-Level symmetry to be achieved: in a NMISU context, TD inevitably stops at the appearance of an MLKAU, due to the cost rule of NM to be applied by virtue of TD, whereas by virtue of **§3.38** the MLKAU at the same time being to be M-adjusted, so that the size of its Output falls back to its Sales (the effect on VA is dependent on the Cost : Sales relation). Unlike the case of the NMLKAU (as demonstrated above) there would not be any way out by some feedback. Therefore, in a technical sense, the latter "*aporia*" is the strongest argument against the validity of the general application of the TD Regime.

> On that basis the occurrence of Output Congruence ("=") / Incongruence ("≠") is now summarized in an Overview covering the entire system across Levels, Regimes etc at once (Chart **8**, in the attachment), thus providing the basis to assess any of the "(A-) Symmetries" as well as to eventually select a version appropriate for further Analysis.

- For this purpose it is sufficient that for each of the two contexts (MISU; NMISU) only their *terminal* points (ISU; ∑LKAU) are evaluated and so compared. While these are similar ("comparable") in principle , all kinds of differences arise by stage of observation (***p.v.*** vs ***s.v.***) or by Regime (TD vs BU); e.g. ***p.v.***MISU (ex TD) is compared with ***p.v.***∑LKAU; or with ***s.v.***MISU (ex BU); and with ***s.v.***∑LKAU (exTD). It is the latter comparison (***p.v.***MISU : ***s.v.***∑LKAU) which is most relevant since it reflects the regular procedure as provided by the 'Systems': indeed it closes with "Congruence" ("="), whereas the other examples are incongruent ("≠"). As expected, from that analysis a striking preponderance of "≠" can be concluded. In such circumstances, feedback solutions could as a remedy be built in the System (as by example indicated in Chart **6**), or the discrepancy is accepted. However, overall this means nothing but that "Regime matters" and that, depending on such premises, a certain amount of Incongruence turns out as necessity rather than "failure".
- The singular problem lurking in the NMISU-context as detected earlier is, of course, present there too, although concealed in the more global categories of comparison. The point affects ***p.v.***NMISU or ∑LKAU resp. ***s.v.***NMISU or ∑LKAU when confronted with either ***s.v.***NMISU or ∑LKAU. In other words: even if one accepts the Incongruence, the global comparison cannot yield an unambiguous outcome as long as that obstacle from the respective MLKAU and its virtual NM-content remains.

> The issue discussed here is always turning around the basic "1: n" structure embodied in the Levels, viz Level **II** Level **I**, as pointed out at the beginning. Connected with this are practical problems of identification of the SU and their Output etc. and, as is generally known, these can be nasty enough.
- Such problems arise, e.g., when it is about the elimination or transferral of an SU.
- A particular problem of this kind is the distribution of the Overhead Costs (OH), which for their inherent ubiquity assume theoretical importance. The Distribution of OH is in any case necessary if one insists on the similarity of the outcome in terms of VA by Level **I : II**. In principle, the linkage is often handled "pragmatically", although in theory it is rather loose. Rather on the contrary: there is no single convincing method in the dilemma between different but economically each meaningful points of reference; and these are not necessarily neutral when it is about the M-/NM-quality of the respective SU. Indeed, a variety could be taken into consideration, which cannot be anticipated here. It is only one more point of a relatively weak basis of argument in favour of TD, which requires an unambiguous solution.
- A major application of this point are I-O Statistics, for which the authoritative Manuals propose cross classifications (Supply-Use Tables × Sector accounts). In such a framework the respective problems would quickly become manifest, with solutions reaching from the adoption of "Census VA" to a "somehow" achieved assimilation to the Sector Accounts. However, the respective methodological remarks don't go into any detail of the problems here addressed either. [16]

Conclusions

> The discussion so far may be summarized, based on the major fundamentals and several 'crucial points', resulting in the attempted determination of the inter-Level outcome as follows:

[16] Cf Chapter II, section C, of the respective UN Manual; or Sections 3.3 to 3.5 of the Eurostat Manual.

- The starting point is a methodical topic like TD. It may be considered with a view to its capacity to improve quality in an otherwise more disparate environment, which is at present nothing but the achievement of inter-Level congruence; or it follows a more systemic understanding, examining the point from different angles to benefit from a view broad enough to include most, if not all, variants of this inter-Level relation.
- The conceptive framework is dominated by the two Levels well distinguished by their constituent SU in terms of organisation (the ISU vs the LKAU, for short), and accordingly without inter-Level removals; yet there are possibilities of partition, or merger, or even deletion (and corresponding acts at the other Level) [17]; between the Levels the interrelations of SU are well defined, either being of the 1:1 or the 1: n type. Here the latter type is the only interesting one.
- Apart from their different nature by Level each SU is either **M** or **NM**, respectively, and this with particular rules of decision, which leave a certain room for variation. As to identification proper, a Sequence of stages of the recognition of the "very" nature of the SU can be distinguished so that the original observation (although in order *as such*) may not hold at a later stage, due to applicable special rules.
- It is the mixture of M and NM elements under a common denominator (Output within SU; entire SU of different M-/NM-nature affiliated in a given context) which raises necessities of coordination, viz either in terms of absolute Congruence or allowing certain Inter-Level deviation. On this point a couple of explicit formal rules is applicable:
  -- only for the NMISU context the "complementary type" (i.e**. M**-Output; **M**-LKAU) is generally allowed (thus there reducing the Regimes of TD vs BU to a sort of interpretation rather than decision);
  -- for MLKAU where there would some output primarily seem to be **NM** ("NCS") this is unconditionally to be converted into **M**-Sales (the so called "**§3.38** rule").

  However, whether NMLKAU are as such acceptable as a component of an M-ISU is not made absolutely clear in the 'Systems' (but anticipated here as the solution presumably wanted).[18]
- For dealing with Levels under similarly "mixed" circumstances a set of rules and conventions (as deriving from the 'Systems' /see above /, and beyond that..) may be called upon, by which the basic Regime (TD; BU) and the Sequence of steps to be followed is organised. Guides of this kind would not automatically establish an overall Regime of Congruence but rather allow for the evaluation of all the different solutions arising in such framework. This is the point where the tracks of a review aimed at a mere test of congruence are left in favour of the systemic investigation.
- For the latter, a review of the whole range of possible ways of dealing with the Inter-Level problem can be advanced, which are distinguished by the degrees of "Allowableness of NM in M".
- However, all this holds with certain additional qualifications only:
  -- The way of distribution across Level **I** of those cost components which are not immediately found at Level **I**, although by no means "neutral" (Overheads /OH/) is in no way supported by the 'Systems'.
  -- In addition to the straightforward working TD- or BU-Regimes almost always some Feedback is involved to become ready for decision, e.g.:

[17] These points are repeated here with a view to their potential for solving problems of inter-Level harmonisation. By the way, in a case of an additional ISU being introduced (on account of a re-allocation of an LKAU), there is no change on the existence of that LKAU *as such* but it is complemented by the former (QCE).

[18] A related hint is found in Table 3.2 of the 1995 ESA

- o a certain LKAU may better qualify for removal rather than staying as originally observed, either becoming a separate MLKAU (with a newly established quasi-corporate enterprise / QCE/ at Level **II**); or finding more appropriate shelter in a NMISU, in either case thus affecting the original ISU's scope. Concealed potentials may routinely be suspected for better solution;
- o in an NM context, a decision on the existence of a true NCS character would have to be taken as appearing at Level **I** rather than at Level **II** (because of a not sufficiently reliable test on the "50% benchmark").

-- Perhaps most important with a view to the validity of a general TD-Regime (as advanced by the 'Systems'): In an **NM**ISU context, **TD** inevitably has to stop when dealing with an **M**LKAU, due to that **M**LKAU being to be M-adjusted by virtue of **§3.38** but, at the same time, the cost rule being to be applied for the pertinent NM**ISU** as a whole.[19]

- Several of the points picked up above are by no means "neutral" with regard to GDP (MLKAU in NMISU; OH; NCS; application of feedback in general), nor with regard to international comparability in general.

> The great number of alternatives, which appear when at the different stages of observation confronting TD with BU, not only reveal a possibility of a different approach, at least to an extent as supported by an identified BU → TD feedback; beyond that, the alternatives may also be thoroughly interesting on their own when it is about analysis more closely bound to Level **II** circumstances (e.g. I-O).

> While the 'Systems' require TD as the basic Regime on the Inter-Level coordination the above summary largely questions this stipulation:

- an adaptation would in any case be necessary for the "MLKAU in NMISU"-problem;
- beyond this immediate necessity: further advice on the OH point as well as on any kind of feedback would be indicated, too;
- the Inter-Level issue (interrelations; interlinks and their identification and eventual adjustment to get rid of "Incongruence") would deserve an explicit treatment;
- after all, the desirability of an alternative analytical basis in terms of BU might be worth consideration.

[19] **§3.23**; implying that Output of NMSU is determined by production costs.

Related Standard Literature

European System of Accounts, ESA 2010, Eurostat / European Commission, Luxembourg, 2013; and its still relevant preceding versions -

- ESA 1995
- ESA 1979

System of National Accounts 2008, UN etc, New York, 2009 (for short: 2008 SNA);
and its till relevant preceding versions –

- 1993 SNA
- 1968 SNA

Manual of Supply, Use and Input-Output Tables, Eurostat, Luxembourg, 2008

Handbook of Input-Output Table Compilation and Analysis, UN, New York, 1999

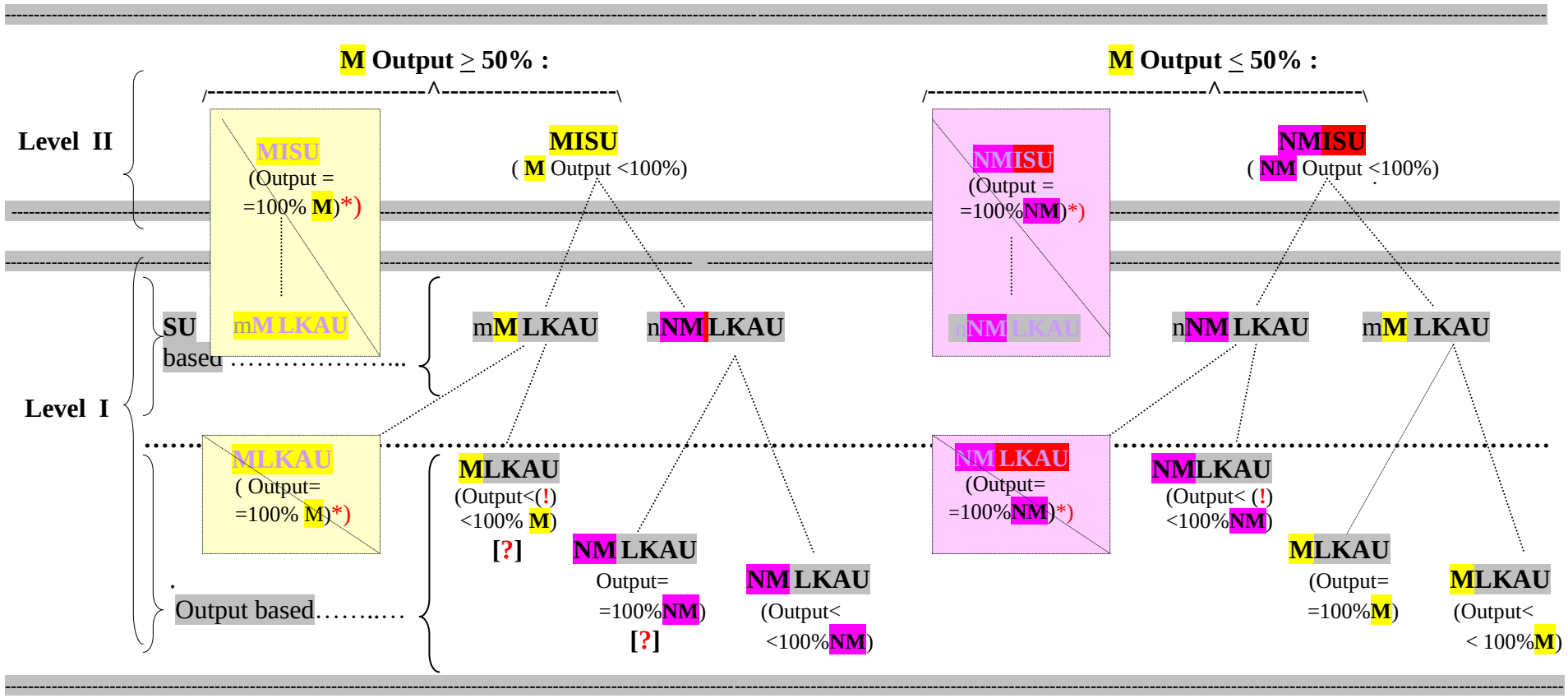
Government Finance Statistics Manual, IMF, Washington DC, 2001

Frits Bos, Compiling the national accounts demystified, Statistics Netherlands, Voorburg 2007

Evolving the Basic Patterns: The universal Level Structure

[**Chart 2**, ctd]

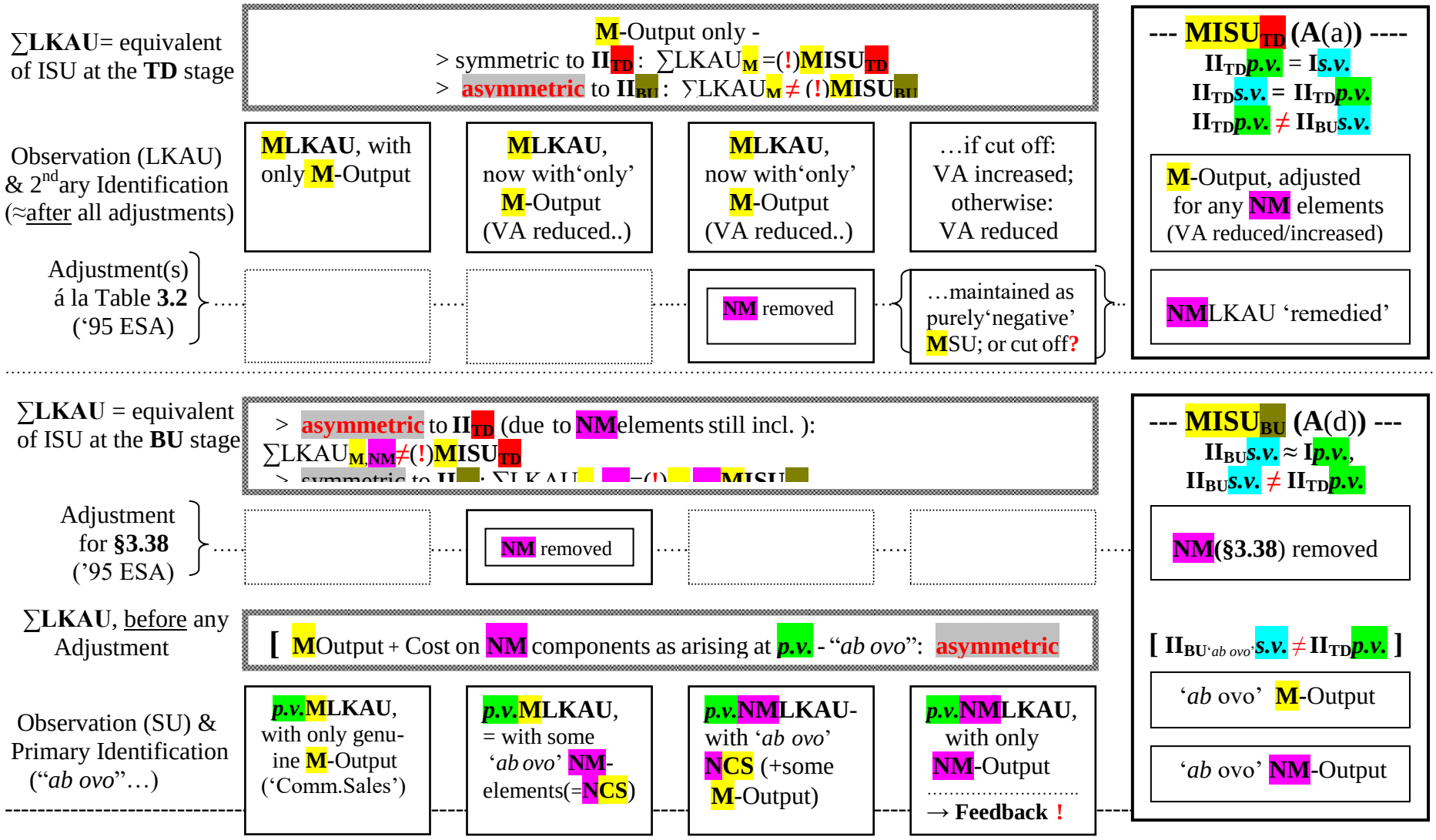
The "1:n" case, continued on **M/NM**, and extended towards **Output:**



"*)": in these cases there is no deviation of the LKAU's **M**/**NM** quality from that of "its" ISU; therefore: no Incongruence is resulting (not further interesting ..).-
"**[?]**": in these cases congruence will definitively (**MLKAU**), or presumably (**NM LKAU**) be achieved according to positive stipulations in the Systems.-
In the remaining cases **M** / **NM** divergences are involved, either in terms of the SU as a whole (ISU≠LKAU) or, at least, of the LKAU's Output in relation to the whole ISU. That way the entire scope is outlined of all the situations of Asymmetries (Incongruence) appearing in the 'Systems' and awaiting some solution.

Level Symmetries /Asymmetries (I:II) as ensuing from (non-?)application of the legal environment: MISU **[Chart 6]**

< …… LEVEL **I (LKAU)** …… > < …. **LEVEL II (ISU)** …. >



Level Symmetries /Asymmetries (I:II) as ensuing from (non-?)application of the legal environment: NMISU [Chart 7]

< …… LEVEL **I (LKAU)** …… > < … **LEVEL II (ISU)** …. >

∑**LKAU**= equivalent of ISU at → **TD**

NM-Output + Output of **M**-LKAU(**§3.38**!) -
> asymmetric to $\mathbf{II}_{TD}$ (strictly *cost*(!) based): $\sum LKAU_{NM,M} \neq$ (!) $\mathbf{NMISU}_{TD}$
> symmetric to $\mathbf{II}_{BU}$: $\sum LKAU_{NM,M}$ = (!) $\mathbf{NMISU}_{BU}$

---- $\mathbf{NMISU}_{TD}$ (**A**(a)) -----
$\mathbf{II}_{TD}$***p.v.*** ? $\mathbf{I}$***s.v.*** (!!!)
$\mathbf{II}_{TD}$ ***p.v.*** = $\mathbf{II}_{TD}$***s.v.***(**FB**!)
$\mathbf{II}_{TD}$***p.v.*** ≠ $\mathbf{II}_{BU}$***s.v.***

Observation (LKAU) & 2nd ary Identification (≈after all adjustments)

MLKAU, with only **M**-Output	**MLKAU**, now with 'only' **M**-Output (VA reduced..)	**NMLKAU**, with some **M**-Output	**NMLKAU**, with only **NM**-Output

M-LKAU, adjusted for any **NM** elements: results into asymmetry (!) (VA reduced..)

Adjustment(s) á la Table **3.2** ('95 ESA)

∑**LKAU** = equivalent of ISU at → **BU**

> asymmetric to $\mathbf{II}_{TD}$ (due to **M**-elements still being *ok*):$\sum LKAU_{NM,M} \neq$(!)$\mathbf{NMISU}_{TD}$
> symmetric to $\mathbf{II}_{BU}$: $\sum LKAU_{NM,M}$ =(!)$_{NM,\ M}$ $\mathbf{NMISU}_{BU}$

---- $\mathbf{NMISU}_{BU}$ (**A**(d)) ----
$\mathbf{II}_{BU}$***s.v.*** ≈ **I*****p.v.***,
$\mathbf{II}_{BU}$***s.v.*** ≠ $\mathbf{II}_{TD}$***p.v.***

Adjustment for **§3.38** ('95 ESA)

	NM removed		

NM(**§3.38**) removed

∑**LKAU**, before any Adjustment

[**M**-Output + Cost on **NM** (**NCS**; **NM**SU) as arising at ***p.v.***-"*ab ovo*": **asymmetric**]

[$\mathbf{II}_{BU}$'*ab ovo*'***s.v.*** ≠ $\mathbf{II}_{TD}$***p.v.***]

Observation (SU) & Primary Identification

("*ab ovo*"…)

p.v.**MLKAU**, with only genuine **M**-Output ('Comm.Sales')	***p.v.*****MLKAU**, = with some '*ab ovo*' **NM**-elements(=**NCS**)	***p.v.*****NMLKAU**- with **NCS** + genuine **NM**- (+ some **M**-)Output	***p.v.*****NMLKAU**, with only **NM**-Output

'*ab* ovo' **NM**-Output

'*ab* ovo' **M**-Output

Inter- and Intra-Level Divergences on Output (∑Output) expressed in terms of " = " (Congruence) and " ≠ " (Incongruence) [Chart 8]

	MISU context					NMISU context				
	p.v.			s.v.		p.v.			s.v.	
	MISU (*ex* TD)	∑ **LKAU**	∑LKAU ["***ab ovo***"]	**MISU** (*ex* BU)	∑**LKAU** (*ex* TD)	**NMISU** (*ex* TD)	∑ **LKAU**	∑LKAU ["***ab ovo***"]	**NMISU** (*ex* BU)	∑**LKAU** (*ex* TD)
	… 1st stage of comparison ….			2nd stage of comparison		…. 1st stage of comparison ….			2nd stage of comparison	

MISU context:

p.v.										
MISU (=TD)	--	≠ [20]	≠ [21]	≠ [1]	=	--	--	--	--	--
∑**LKAU**(=BU)	≠ [1]	--	≠ [22]	=	≠ [1]	--	--	--	--	--
[∑LKAU] ["***ab ovo***"]	≠ [2]	≠ [3]	--	≠ [3]	≠ [2]	--	--	--	--	--

NMISU context:

p.v.										
NMISU (=TD)	--	--	--	--	--	--	? [23]	≠ [3]	? [4]	=
∑**LKAU**(=BU)	--	--	--	--	--	? [4]	--	≠ [3]	= [4]	?
[∑LKAU] ["***ab ovo***"]	--	--	--	--	--	≠ [3]	≠ [3]	--	≠ [3]	=

Feed back: QCE, NCS, NMSU (MISU context) — QCE, NCS (NMISU context)

[20] due to NMSU as *p.v.* identified at Level **I** (yet **§3.38** o.k.) overleaf

[21] due to any NM element *as such* identified [Level **I** "*ab ovo*"]

[22] due to **§3.38** (which is "*ab ovo*"not yet taken into account)

[23] NM in M is getting lost when compared at an overall cost basis

continued

In

ter- and Intra-Level Divergences on Output (∑Output) expressed in terms of " = " (Congruence) and " ≠ " (Incongruence): c'td

	MISU context					NMISU context				
	p.v.			***s.v.***		***p.v.***			***s.v.***	
	MISU (*ex* TD)	∑ **LKAU**	∑LKAU ["***ab ovo***"]	**MISU** (*ex* BU)	∑**LKAU** (*ex* TD)	**NMISU** (*ex* TD)	∑ **LKAU**	∑LKAU ["***ab ovo***"]	**NMISU** (*ex* BU)	∑**LKAU** (*ex* TD)
	… 1st stage of comparison …			2nd stage of comparison		…. 1st stage of comparison ….			2nd stage of comparison	

MISU context:

s.v.											
MISU (=BU)	≠ [1]	=	≠ [3]	--	≠[1]	--	--	--	--	--	
∑**LKAU**(=TD)	=	≠[1]	≠ [2]	≠ [1]	--	--	--	--	--	--	

NMISU context:

s.v.											
NMISU (=BU)	--	--	--	--	--	?	=	≠ [3]	--	?	
∑**LKAU**(=TD)	--	--	--	--	--	=	?	≠ [3]	?	--	

Feed back: **QCE** **NCS** **NMSU** … **QCE** **NCS**

Footnotes: see previous page

Symbols: ≠ : Incongruence of the Inter-Level relation
≠ : Incongruence of the Intra-Level relation
= : Congruence of the Inter-Level relation

? Implementation (TD; BU) towards Inter-Level Congruence not working (!); cf [4] (.\.)