

András Kertész

Inconsistency and the dilemma of intuitionistic research in generative syntax*

Abstract

The paper is a contribution to the current debate on linguistic data and evidence. It raises two questions: (a) What kinds of inconsistency do emerge in generative syntax? (b) How are these kinds of inconsistency to be evaluated with respect to the workability of the syntactic theory at issue? As a first step, a system of paraconsistent logic is introduced which distinguishes between weak and strong inconsistency. While weak inconsistency is harmless, strong inconsistency is destructive. Second, a case study demonstrates that in generative syntax weak inconsistency may be a useful tool of problem solving. Third, two further case studies show that intuition as a data source triggers the emergence of strong inconsistency in generative syntax. Finally, this results in a methodological dilemma with far-reaching consequences.

Keywords: generative linguistics, paraconsistency, contradiction, inconsistency

* Work on the present paper was supported by the Research Group for Theoretical Linguistics of the Hungarian Academy of Sciences as well as the projects OTKA K 77823 and TAMOP 4.2.1./B-09/1/KONV-2010-0007.

1 Introduction

For a couple of decades, the data processing technique of generative syntax has been considered relatively unproblematic by its practitioners. However, the past few years have seen a fierce debate on the methodological problems raised by the nature of grammaticality judgments as the primary *data type* and intuition as the primary *data source* of generative syntax.¹ In the present paper, we intend to contribute to the debate by raising the following problem:

- (P) (a) What kinds of inconsistency do emerge in generative syntax?
 (b) How are these kinds of inconsistency to be evaluated with respect to the workability of the syntactic theory at issue?

In order to highlight the relevance of (P), we refer to three aspects of the state of the art in the philosophy of science. The first is the principle of non-contradiction as advocated in classical two-valued logic. It says that no statement can be both true and false at the same time. In contradictory systems of statements any statement can be inferred and therefore the system results in logical chaos.

Second, the Analytical Philosophy of Science which had dominated the methodology of scientific research until the impact of Kuhn's (1970)[1962] seminal work, presupposes the principle of non-contradiction as *the most important pillar* of the methodology of the natural sciences. Nevertheless, the epistemological consequences of the violation of the principle of non-contradiction would be disastrous for scientific knowledge:

For it can easily be shown that if one were to accept contradictions, then one would have to give up any kind of scientific activity: it would mean a *complete breakdown of science*. This can be shown by proving that if two contradictory statements are admitted, any statement whatever must be admitted; for from a couple of contradictory statements any statement whatever can be validly inferred. (Popper 1962: 313; emphasis added)

¹ See e.g. Schütze (1996), Borsley (ed.)(2005), Penke & Rosenbach (eds.) (2007), Kepser & Reis (eds.)(2005), Sternefeld (ed.)(2007), Featherston & Winkler (eds.)(2009), Winkler & Featherston (eds.)(2009) etc. For a detailed analysis of the debate see Kertész & Rákosi (2012).

Consequently, a scientific theory which includes a contradiction may make arbitrary claims about the world and should therefore be deemed *irrational*.

Nevertheless, there is a third aspect as well which may overrule the destructive consequences of these views. Namely, as we know, the Analytical Philosophy of Science no longer prevails. During the current renewal of the philosophy of science, it has been also realised that the emergence of a contradiction in a scientific theory is not necessarily destructive. Current philosophy of science has re-evaluated the structure and function of contradictions in scientific inquiry as follows (see e.g. the contributions in Meheus 2002):

(i) There may be different kinds of contradiction and contradictions may play different roles in scientific theorising. Therefore, their evaluation should depend on their particular properties:

Researchers rarely reject a promising approach on the ground that it is apparently inconsistent. Conversely, inconsistency does not necessarily kill all promise of problem-solving success. *Not all inconsistencies are equal*. Some are profound while others are mere nuisances, rough spots to tiptoe around. (Nickles 2002: 20f.; emphasis added)

Accordingly, there may be contradictions which are not disastrous that is which do not lead to the collapse of the theory at issue.

(ii) There have been logics elaborated which facilitate the tolerance of certain kinds of contradiction, while at the same time, they are capable of avoiding logical chaos:

[...] we are left with the task of better understanding how inconsistency and neighboring kinds of incompatibility are tamed in scientific practice and the corresponding task of better modeling idealised practice in the form of *inconsistency-tolerant logics and methodologies*. (Nickles 2002: 2; emphasis added)

Such logics are called *paraconsistent*. Accordingly, they seem to provide tools for the reconstruction of certain contradictions emerging in scientific inquiry. Paraconsistent logics may account for cases in which the contradiction between the data and the hypotheses does not make the theory at issue unworkable.

Against the background sketched, we will proceed as follows. In Section 2, we will introduce a particular approach to paraconsistent logic which we expect to be able to differentiate between *weak* and *strong* inconsistency. Section 3 will be devoted to a case study which exemplifies the emergence of weak inconsistency in generative syntax. In Section 4 we will discuss two case studies aiming at the ex-

emplification of strong inconsistency. Finally, in Section 5, we will draw the conclusions from the case studies which yield the solution to our problem (P).

2 Rescher and Brandom's paraconsistent logic

The logical consequence relation of classical two-valued logic is said to be *explosive* which means that from a contradictory pair of premises any statement can be inferred. In contrast, a logical consequence relation is *paraconsistent* if and only if it is not explosive, and a logic is called paraconsistent if and only if its logical consequence relation is not explosive. Accordingly, a paraconsistent logic allows for specific kinds of inconsistency without triggering logical chaos. However, in order to avoid misunderstandings, it is important to distinguish paraconsistency from dialetheism. While paraconsistency merely maintains that inconsistency does not lead to *triviality* i.e. to the possibility of inferring any arbitrary statement, dialetheism claims that there are true contradictions.²

Thus, the central question which *paraconsistent* logics are intended to answer is how logical chaos can be avoided even if the system at issue includes contradictory statements. Different paraconsistent logics give different answers to this question by elaborating different technical tools. We will suggest the application of a paraconsistent

² "Paraconsistency [...] is to do with the inference relation $\{A, \neg A\} \models B$ for every A and B (*ex contradictione quodlibet* (ECQ)). Dialetheism, on the other hand, is the view that there are true contradictions. If dialetheism is to be taken as a view that does not entail everything, then a dialetheist's preferred logic must better be paraconsistent. For dialetheism is the view that *some* contradiction is true and it does not amount to *trivialism* which is the view that *everything*, including every contradiction, is true.

Now, a paraconsistent logician may feel the force of pulling them towards dialetheism. Yet the view that a consequence relation should be paraconsistent does not entail the view that there *are* true contradictions. Paraconsistency is a property of an inference relation whereas dialetheism is a view about some sentences (or propositions, statements, utterances or whatever, that can be thought of as truth-bearers). The fact that one can define a non-explosive consequence relation does not mean that some sentences are true. That is, the fact that one can construct a model where a contradiction holds but not every sentence of the language holds (or, if the model theory is given intensionally, where this is the case at some world) does not mean that the contradiction is true *per se*. Hence paraconsistency must be distinguished from dialetheism." (Priest & Tanaka 2009)

logic to (P), which does not amount to dialetheism i. e. does not claim that the contradictions that obtain in the system of statements are true. We choose Rescher & Brandom (1980).³

Rescher and Brandom's 'logic of inconsistency' is based on a Kripke-semantics. However, the authors introduce two modifications. First, they define the operation of *superposition* on the set of possible worlds as follows:

- (1) The superposition of the possible world w_1 and w_2 is a possible world w in which a statement p is true if and only if it is true either in w_1 or in w_2 .

' \cup ' symbolises the operation of superposition and $w_1 \cup w_2 = w$ the relation between the two component worlds and the superposed world. Then, (1) says that p is true in $w_1 \cup w_2$ if and only if it is true *at least* in one of the component worlds.

The consequence of (1) is that it may be the case that in w both p and $\sim p$ are true – however, separately in the two different component-worlds of w . $p \ \& \ \sim p$ is not true in w because it is neither true in w_1 , nor in w_2 .⁴

Second, the valid inference principle of classical logic maintains:

- (2) $p_1, p_2, \dots, p_n \vdash q$

(2) can be assigned two different semantic interpretations:

- (3) If
- (a) $p_1, p_2, \dots, p_n \vdash q$ is a valid inference principle of classical logic, and
 - (b) p_1 is true in w , p_2 is true in w , ..., p_n is true in w , then
 - (c) q is true in w .

³ See Kertész (2004), (2011) for further applications of Rescher & Brandom (1980) to linguistics.

⁴ '&' stands for the logical constant 'conjunction' and '~' for 'negation'.

- (4) If
- (a) $p_1, p_2, \dots, p_n \vdash q$ is a valid inference principle of classical logic, and
 - (b) $p_1 \& p_2 \& \dots \& p_n$ is true in w ,
- then
- (c) q is true in w .

(3) is the *distributive* and (4) the *conjunctive* reading of the valid inference principle. If one accepts (3), then logical chaos cannot be excluded, because p and $\sim p$ may appear as premises in an inference. In contrast, (4) does not permit inferences from contradictory premises, because statements contradicting each other cannot be conjunctively true. Accordingly, Rescher and Brandom accept (4) as the semantic interpretation of the valid inference principle of classical logic. (1) and (4) legitimise the introduction of two notions of inconsistency.

We will speak of *weak* inconsistency if, first, in a possible world w such that $w_1 \cup w_2 = w$, both p and $\sim p$ are true; thereby, p is true in w_1 and $\sim p$ is true in w_2 or vice versa. In this case the contradictory statements obtain in two distinct possible worlds. Second, logical chaos cannot emerge because the simultaneous use of p and $\sim p$ as the premises of inferences is forbidden.

Strong inconsistency emerges if these two conditions do not hold. Rescher and Brandom's paraconsistent system allows weak, but excludes strong inconsistency.

Against this background, we will assume that the paraconsistent logic which accepts (1) and (4) can be expected to provide a possible solution to our problem (P) insofar as it differentiates between strong and weak inconsistency. Thereby, weak inconsistency is to be evaluated as harmless, because it does not lead to the collapse of the system, whereas strong inconsistency is harmful.

As the next step of our argumentation, we will analyse three case studies taken from generative grammar. We will apply the paraconsistent logic introduced above in order to decide whether they are weakly or strongly inconsistent.⁵

⁵ From this point on we will use the term 'contradiction' without an attribute in the sense 'either strong or weak contradiction' in order to refer to cases in which it has not yet been decided whether the relation between two statements rests on strong or weak contradiction.

3 Case study: weak inconsistency in generative syntax

As an example we choose Katalin É. Kiss' (1987: 224-243) government-binding approach to subject control constructions in Hungarian. We will discuss them by adapting Moravcsik's (2006: 57-59) very clear summary of É. Kiss' considerations, and we will also cite Moravcsik's examples.

Let us consider the following sentence (É. Kiss 1987: 237):

- (5) (Én) szeretné-**lek** ritkán látni (**téged**) itt.
 (I) would:like-S₁:S₂.**OBJ** seldom see-INF(**you**:**ACC**) here
 'I would like to see you here seldom.'

Here the main verb (*szeretnélek*) agrees both with its subject (*én*) and the direct object (*téged*) of the infinitive (*láttni*) and the subject.⁶ The problem is that, on the one hand, it is generally assumed that verb agreement is local i.e. the controller and the target are in the same clause. On the other hand, in (1) the agreement controller and the target seem to be in two different clauses. Therefore, the following contradictory pair of claims is obtained:

- (6) (a) Subject control constructions in Hungarian are bi-clausal.
 (b) Subject control constructions in Hungarian are mono-clausal.

The problem is that, according to É. Kiss, the data support both the mono-clausal and the bi-clausal analysis.

I. Arguments for (6)(a)

Argument 1. The first argument for *bi-clausality* may be illustrated by the following sentences:⁷

- (7) (a) Én **egy** film-et akar-**ok** néz-ni.
 I a film-ACC want-S₁:**INDEF.OBJ** watch-INF
 'I want to watch a film'

⁶ Since Hungarian is a pro-drop language, the subject pronoun may be dropped.

⁷ According to Moravcsik's notation in the glosses 'S₁' is to be read as 'singular first person subject'. The first component of the glosses of the verb suffix indicates the subject and the second indicates the object.

- (b) Igyeksz-**ek** majd **egy** hozzáértőt megkérdez-ni
 try-S₁.INDEF.OBJ later **an** expert:ACC ask-INF
 'I will try to ask an expert.'
- But: *Igyeke^z-**ek** egy hozzáértőt
 try-S₁.INDEF.OBJ an expert:ACC

In (7)(a) there is a noun phrase marked for the accusative and there are two verbs. The main verb *akar* ('want') is transitive and thus it may govern the accusative case. But in (7)(b) the main verb *igyekszik* ('to try') is intransitive, and that's why it cannot be responsible for the accusative of its own object. As opposed to this, the infinitive *megkérdez* ('to ask') is obligatorily transitive and takes a direct object. Consequently, the object noun phrase is the object of the subordinate verb. Thus, the sentence includes two clauses. The main verb is the head of one of the clauses, whereas the infinitive is the head of the other.

Argument 2. There is a rule according to which in Hungarian the focused constituent must directly precede the verb of the clause in which it appears. Now, consider (8):

- (8) Igyeke^zlek **TÉGED** hívni fel holnap először.
 try:S₁:S₂OBJ **you_s:ACC** to:call up tomorrow first.
 'It is you_s that I will try to call tomorrow first.'

Here it is the direct object *téged* (you_s:ACC) that is in focus position while it is followed by the infinitive. Therefore, it must be the object of the infinitive.

II. Arguments for (6)(b)

Argument 3. Consider (5):

- (9) **TÉGED** igyeke^zlek felhívni holnap először.
you_s:ACC try:S₁:S₂.OBJ to:call:up tomorrow first.
 'I will try to call you_s tomorrow.'

(9) witnesses that the object may appear in focus position in such a way that it immediately precedes the infinitive. Accordingly, it is the object of the main verb and therefore the sentence permits a monoclausal analysis.

Argument 4. A further argument for mono-clausality says that, since clauses have inflected verbs, it is unmotivated to assume that the infinitive occurs in an independent clause.

Argument 5. Moreover, the main verb agrees with the object. Accordingly, we can assume that the object belongs to the main verb and this is an argument for the mono-clausal analysis.

At this point, if we compare the two sets of arguments, then we will immediately see that there are three of contradictions. Arguments 1 and 2 contradict the hypothesis (6)(b). Arguments 3-5 contradict the hypothesis (6)(a). Finally, (6)(a) and (6)(b) contradict each other, too.

In order to save the consistency of the theory, one option would be to discard either (6)(a) or (6)(b). However, this would lead to the loss of relevant information, because the data in favour of the hypothesis to be rejected would be discarded, too. Another option would be to reject the whole theory, in the spirit of the Analytical Philosophy of Science as we quoted in the Introduction. Yet É. Kiss chose neither of these options:

It appears that the monoclausal and biclausal properties of subject control constructions are equally weighty; *neither of them can be ignored or explained away*. What is more, they are *simultaneously* present; consequently, the biclausal structure and monoclausal structure that can be associated with a subject control construction cannot represent two subsequent stages of the derivation, but must hold *simultaneously*. (É. Kiss 1987: 237)

As the quotation witnesses, the author advocates the *simultaneous presence* of the two contradictory statements and she highlights the necessity of keeping both of them.

Then, the next question for us is whether here we have to deal with strong or weak inconsistency. In order to decide this question, let us consider the following:

If [...] the infinitive and the constituent incorporated into it are retrieved from the lexicon as a single constituent, movement rules can analyze the subject control construction *either* as a monoclausal *or* as a biclausal structure – but they *cannot analyze it in both ways*. (É. Kiss 1987: 242; emphasis added).

This quotation nicely illustrates *the very essence of superposition*: namely, that the contradicting statements may coexist, but that they coexist *separately* and do not serve as joint premises of inferences. This means, in our terminology, that the mono-clausal and the biclausal treatment do not hold in the same possible world, but rather,

they hold in two different constituent possible worlds. Accordingly, É. Kiss' approach is *weakly* inconsistent. This is the reason why her theory does not collapse and does not lead to logical chaos; it is *a perfect example of paraconsistency* in generative syntax.

Accordingly, É. Kiss (1987: 238) maintains that "it appears probable that subject control constructions [...] have to be assigned a dual structure". Figure 1 is the adaptation of É. Kiss' (1987: 238) figure (67) and represents the double structure of the sentence in (5).

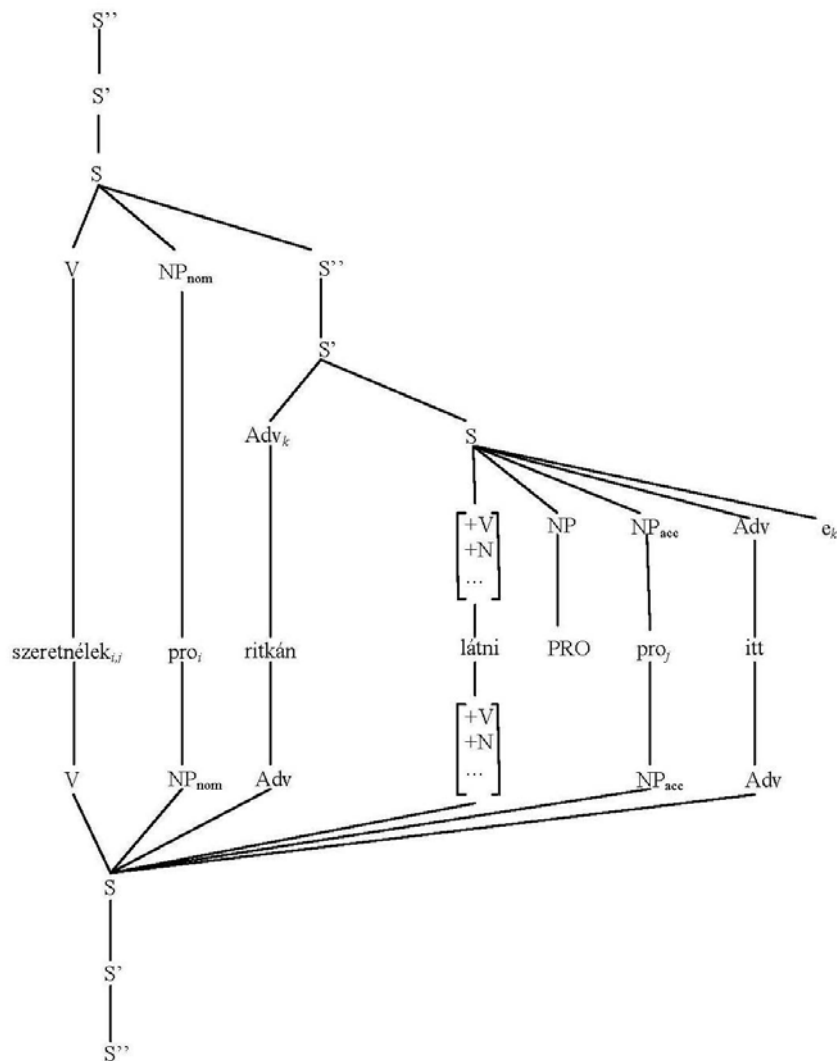


Fig. 1

Now we can reconstruct the paraconsistency of É. Kiss' analysis as follows:

- (10) (a) Let the following statements be given:
 P = Subject control constructions in Hungarian are bi-clausal.
 Q = Subject control constructions in Hungarian are mono-clausal.
- (b) Let us assume that $w_1 \sqcup w_2 = w$, where w is the whole of É. Kiss' theory.
- (c) Let the possible world w_1 include arguments 1 and 2. Let the possible world w_2 include the arguments 3, 4 and 5.
- (d) Then, P is true in w_1 but false in w_2 and Q is true in w_2 but false in w_1 . Consequently, in w both P and Q are true, but $P \& Q$ is true neither in w_1 nor in w_2 nor in w .

However simple this reconstruction of É. Kiss' approach to subject control constructions in Hungarian is, it has far-reaching consequences as regards the handling of inconsistency in linguistic theorising.

The first is that the inconsistency is static, because no attempt at its resolution has been made at that stage of theory formation at which É. Kiss' analysis is located.⁸ In spite of this it can be tolerated and does not undermine the informativeness of the theory.

Second, (10) yields a straightforward explanation for the double-facedness of the theory. On the one hand, the theory is well working. The reason for this is that it did not discard classical logic insofar as it did not give up the principle of non-contradiction and does not allow for drawing inferences from contradictory premises. In spite of its weak inconsistency, the theory preserves its informativeness. On the other hand, our reconstruction has accounted for the simultaneous maintenance of the two contradictory statements (6)(a) and (b).

Third, the logical model itself, which we applied to É. Kiss' analysis, *is consistent*, because, as we have seen, it presupposes (1) and (4).

⁸ It is a crucial problem that in the process of theory formation there is a dynamism between the emergence and the resolution of contradictions. For example, the resolution of a particular contradiction may give rise to another at another point of the theory. Here we cannot deal with this issue. We merely remark that Kertész & Rákosi (2006), (2012) argue that this kind of dynamism can be captured by a model of plausible argumentation which is closely related to paraconsistency.

The significance of these findings is that the paraconsistent solution of problems seems to facilitate the explanation of structures which, without the tolerance of paraconsistency, would fall outside the scope of the syntactic theory at issue.

4 Case studies: strong inconsistency in syntactic theorising

4.1 *Introductory remark*

As mentioned in the Introduction, during the past decade the reliability of grammaticality judgments as the primary data type and intuition as the primary data source of syntactic theorising has been a fiercely debated issue.⁹ In the present section, we will discuss two examples both of which belong to the context of this debate on linguistic data. The first will show that strong inconsistency may emerge if there is a clash between two different data sources, namely, intuition and experiment. The second traces back strong inconsistency to a certain kind of interference within grammaticality judgments.

4.1 *The linguist's grammaticality judgements vs. the results of experiments*

Featherston (2007: 273ff.) exemplifies the basic problem which arises from the general practice according to which hypotheses are supported by the linguist's own grammaticality judgments which constitute his/her only data base. Here we will reconstruct one of Featherston's examples with the help of Rescher and Brandom's logic in order to show that such cases may lead to inconsistency.

Featherston quotes Grewendorf (1988:5–8) where the following grammaticality judgments are considered as data:

⁹ See Kertész & Rákosi (2012) for detailed analyses of the current debate on linguistic data.

- (11)(a) Der Arzt zeigte **den Patienten_j** sich_j/*ihn_j im Spiegel.
The doctor showed **the patient:ACC** himself/him in the mirror.
(b) Der Arzt zeigte **dem Patienten_j** ihn_j/*sich_j im Spiegel
The doctor showed **the patient:DAT** him/himself in the mirror

In Grewendorf's view these data support the following hypothesis:

- (12) "Ist das Antezedens ein Akkusativ-Objekt, dann wird ein koreferentes Dativ-Objekt reflexiviert. Ist das Antezedens jedoch ein Dativ-Objekt, dann wird ein koreferentes Akkusativ-Objekt nicht reflexiviert (sondern pronominalisiert)." Grewendorf (1988: 58)

Featherston compiled a questionnaire including 16 syntactic and 8 lexical variants, and collected the introspective grammaticality judgments of 26 informants. He reports on the details of the experiment which we do not repeat here, because for our purposes it will be sufficient to mention only the main finding:

- (13) According to the experimental data, the reflexive is better than the pronoun irrespective of whether the antecedent was dative or accusative.

Thus, for the sake of argument, let us formulate this finding as the exact opposite of (12)

- (14) (12) is not the case.

Featherston (2007: 275) concludes that "the judgments of an individual are revealed to be inadequate as a basis for theory development" and emphasises that finer data are required such as the experimental data mentioned.

From the point of view of our problem (P), it is important to remark that, similarly to the case discussed in Section 3, there are three contradictions here: one between the data in (11) and the hypothesis in (14); another between the data referred to in (13) and the hypothesis in (12); and finally, between (12) and (14).

Should the contradiction between (12) and (14) be reconstructed as weak or strong inconsistency? The crucial point is that both Grewendorf's grammaticality judgments in (11) on which (12) is based and the experimentees' judgments referred to in (13) yielding (14) are

rooted *in the same data source, namely, introspection*. Accordingly, it is not the case that they obtain under different conditions. Therefore, it is not possible to divide the possible world corresponding to Grewendorf's theory into two component worlds, one including Grewendorf's judgment, the other those of the experimentees. Since both kinds of judgments work as premises yielding (12) and (14), respectively, there is no avoiding the latter's conjunction which inevitably results in strong inconsistency.

We reconstruct this situation as follows:

- (15) (a) Let the following statements be given:
 P = the data in (11).
 Q = the data referred to in (13).
 R = (12)
 S = (14)
- (b) Let the possible world *w* be the whole theory.
 (c) In *w* both *P* and *Q* are true.
 (d) In the possible world *w*, *R* is true, because it is a consequence of *P*. Similarly, in the possible world *w*, *S* is true, because it is a consequence of *Q*.
 (e) Therefore, *w* is strongly inconsistent.

4.2 *Interference in grammaticality judgments*

Riemer (2009: 615) assumes that

[i]ntuitions are problematic as sources of data since they are notoriously susceptible to 'noise' created by extragrammatical factors. In particular, linguistic intuitions of grammaticality are hard to distinguish from stylistic intuitions of correctness or felicity. These notions derive from an age-old prescriptive grammatical and pedagogic tradition and reflect many extrinsic considerations, in particular notions of elegance, good style and 'logical' or felicitous expression.

As an example, he refers to the following sentence discussed among others in (Hornstein et al. 2005: 299):

- (16) *There seems to be many people in the room.

Riemer claims that on the one hand, the reason why this sentence is judged ungrammatical is that the judgment interferes with traditional Latin prescriptive grammars in which verb/subject concord is

more prominent than in English. On the other hand, he refers to a great number of data representing the construction '*there-seems-to-be* + plural NP'. Thus, the judgment is in opposition to (16):

(17) There seems to be many people in the room.

He concludes that such phrases may witness the existence of a different construction with separate syntactic properties:

We can adduce language-internal reasons (English verb-'subject' concord) for which the construction might be counted as ungrammatical, justifying the feeling of unacceptability which it provokes in some subjects. But the very assumption that the concord rule applies to *there is* sentences in English is open to question. We should not assume that phrases like [12] necessarily observe the standard concord regime: they may already constitute a distinct construction with an autonomous syntax. This hypothesis would explain the intuitions of those speakers for whom [12] is acceptable. Given that we also suspect that for some speakers at least the judgement of ungrammaticality is influenced by prescriptive considerations, **it is very unclear how to proceed: which intuition is relevant for theory construction**, and how can we untangle it from prejudices, perhaps deeply held, about correct or proper speech? (Riemsdijk 2009: 615; bold emphasis added)

This boils down to the fact that there are two contradicting hypotheses:

(18) In English Verb-subject concord applies to the construction '*there-seems-to-be* + plural NP'

(19) In English Verb-subject concord does not apply to the construction '*there-seems-to-be* + plural NP'.

In analogy to the example discussed in the previous subsection, here we find three contradictions again: two between data and hypotheses, and one between two hypotheses. From the point of view of inconsistency, here again the problem is that a clear separation of (18) and (19) by associating them with two different component possible worlds of a superposed possible world is not possible:

- (20) (a) Let the following statements be given:
 P = the data in (16).
 Q = the data in (17).
 R = (18)
 S = (19)
- (b) Let the possible world w be the whole theory.
- (c) In w both P and Q are true.
- (d) In the possible world w , R is true, because it is a consequence of P . Similarly, in the possible world w , S is true, because it is a consequence of Q .
- (e) Therefore, w is strongly inconsistent.

5 Conclusion: inconsistency and the dilemma of intuitionistic research in generative syntax

So far, our line of reasoning seems to have given a straightforward solution to our problem (P)(a): in generative syntax both weak and strong inconsistency are present.

The comparison of the case study in Section 3 with those in Section 4 will yield our solution to (P)(b). In the first case study it was not grammaticality judgments that were the source of the contradiction. The contradiction was rooted in two sets of arguments in favour of the two hypotheses as a result of which the two hypotheses were validated under two distinct sets of conditions. The grammaticality judgments of the Hungarian sentences in É. Kiss' argumentation were consistent.

As opposed to this, in the case studies in Section 4 it was the grammaticality of *the same* sentence that was judged contradictorily. Moreover, both of the contradicting statements stemmed from *the same* data source, namely, *intuition*. Consequently, it is this data type and this source that seems to be responsible for the fact that the analyses were *strongly* contradictory.

One way to avoid strong inconsistency would be to split up the contradictory grammaticality judgments into two distinct consistent subsets which correspond to two distinct possible worlds and to construct their superposition representing the whole theory at issue. However, although this technique is formally always possible, in syntactic theorising it would lead to absurd consequences. Namely, both case studies in the previous section show that in the extreme case

there may be a set of data that is based merely on the intuition of a single individual (e.g. Grewendorf) or at least a very small group of individuals (Hornstein et al.). Considering for example Grewendorf's data as belonging to one of the possible worlds and those of the experimentees as belonging to the other, would lead to the *absurd* consequence that, based on Grewendorf's very specific data, specific hypotheses have to be constructed, and, based on the latter, a specific grammar of an individual. Likewise, the paraconsistent resolution of the inconsistency in the third case study would mean to construct a specific grammar of a very small group of individuals like Hornstein and his co-authors. Accordingly, the intuitionistic methodology of generative syntax faces a *dilemma*: as long as the data type to be considered is grammaticality judgments and the data source is the intuition of native speakers, the theory may result *either in strong inconsistency or in absurdity*. Neither of these options is an attractive perspective.¹⁰

References

- Borsley, Robert D. (ed.)(2005): *Data in Theoretical Linguistics* [= *Lingua* 115: 1475–1665].
- É. Kiss, Katalin (1987): *Configurationality in Hungarian*. Budapest: Akadémiai Kiadó.
- Featherston, Sam (2007): Data in generative grammar: The stick and the carrot. In: Sternefeld (ed.)(2007), 269-318.
- Featherston, Sam & Winkler, Susanne (eds.)(2009): *The Fruits of Empirical Linguistics. Vol. 1: Process*. Berlin & New York: de Gruyter.
- Hornstein, Norbert, Nunes, Jairo & Grohmann, Kleanthes K. (2005): *Understanding Minimalism*. Cambridge: Cambridge University Press.
- Grewendorf, Günther (1988): *Aspekte der deutschen Syntax. Eine Rektions-Bindungs-Analyse*. Tübingen: Narr.

¹⁰ See Kertész (2011) for the discussion of further consequences of this insight.

- Kepser, Stephan & Reis, Marga (eds.)(2005): *Linguistic Evidence. Empirical, Theoretical and Computational Perspectives*. Berlin & New York: de Gruyter.
- Kertész, András (2004): *Philosophie der Linguistik. Studien zur naturalisierten Wissenschaftstheorie*. Tübingen: Narr.
- Kertész, András (2011): The 'Galilean style in science' and the inconsistency of linguistic theorising. *Foundations of Science* (in press; DOI 10.1007/s10699-011-9234-y).
- Kertész, András & Rákosi, Csilla (2012): *Data and Evidence in Linguistics. A Plausible Argumentation Model*. Cambridge: Cambridge University Press.
- Kuhn, Thomas S. (1970)[1962]: *The structure of scientific revolutions*. Chicago: The University of Chicago Press.
- Meheus, Joke (ed.)(2002): *Inconsistency in science*. Dordrecht: Kluwer.
- Moravcsik, E. (2006): *An introduction to syntactic theory*. London & New York: Continuum.
- Nickles, T. (2002): From Copernicus to Ptolemy. Inconsistency and method. In: Meheus (ed.)(2002), 1-33.
- Penke, Martina & Rosenbach, Anette (eds.)(2007): *What Counts as Evidence in Linguistics?* Amsterdam & Philadelphia: Benjamins.
- Popper, Karl R. (1962): *Conjectures and Refutations: The Growth of Scientific Knowledge*. London: Routledge & Kegan Paul
- Priest, Graham & Tanaka, Koji (2009): Paraconsistent logic. In: *The Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/entries/logic-paraconsistent/> (accessed 04.12.2012).
- Rescher, Nicholas & Brandt, Robert (1980): *The Logic of Inconsistency. A Study in Non-Standard Possible-World Semantics and Ontology*. Oxford: Blackwell.
- Riemer, Nick (2009): Grammaticality as Evidence and as Prediction in a Galilean Linguistics. *Language Sciences* 31, 612–633.
- Schütze, Carson T. (1996): *The empirical base of linguistics. Grammaticality judgments and linguistic methodology*. Chicago & London: The University of Chicago Press.

Sternefeld, Wolfgang (ed.)(2007): *Data in Generative Grammar* [= *Theoretical Linguistics* 33/3: 269–413].

Winkler, Susanne & Featherston, Sam (eds.)(2009): *The Fruits of Empirical Linguistics. Vol. 2: Product*. Berlin & New York: de Gruyter.

Prof. Dr. András Kertész
University of Debrecen
Department of German Linguistics
H-4010 Debrecen
Pf. 47
kert.esz@freemail.hu