

When movement and base-generation compete

The definition of the reference set and parameterized preferences for elementary operations*

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1. Introduction: Resumption in Zurich German relative clauses

This paper provides evidence that movement and base-generation compete in certain contexts in Zurich German relative clauses. From this can be concluded that the reference set must be based on identical LFs. Crosslinguistic variation in the preference for movement or base-generation is related to an indeterminacy of the computational system that is resolved by the relative ranking of constraints preferring either the elementary operation Merge or Move, respectively.

Instead of using relative pronouns, as in the standard language, Zurich German (ZG) relatives feature an invariant complementizer *wo* (*won* before vowel-initial clitics). The examples in (1) show that while relativization of subjects and objects requires gaps, oblique positions require resumptive pronouns, in accordance with the Accessibility Hierarchy of Keenan & Comrie (1977).¹ Resumptives are also found inside islands, as in (2). In this case subjects and objects also require resumptives.

- (1) a. d Frau, wo (*si) immer z spaat chunt
the woman C (she) always too late comes
'the woman who is always late' (SU: *wo* + gap)
- b. es Bild, wo niemert (*s) cha zale
a picture C nobody (it) can pay
'a picture that nobody can afford' (DO: *wo* + gap)
- c. de Bueb, wo mer *(em) es Velo versproche händ
the boy C we (he.DAT) a bike promised have.1PL
'the boy we promised a bike' (IO: *wo* + res.)
- d. d Frau, won i von *(ere) es Buech überchoo han
the woman C I from (her) a book got have.1SG
'the woman from whom I got a book' (OBL: *wo* + res.)

- (2) de Autor, wo d Marie < jedes Buech, won
 the author C the Mary every book C
 *(er) schriibt >, chaufft
 he writes buys
 'the author such that Mary buys every book he writes' (CNPC)

2. The syntax of resumption in Zurich German

2.1 Explaining the distribution of resumptives in ZG relatives

The distribution of resumptives is governed by two factors. Resumptives occur to prevent violations of locality, as in (2). This also covers cases like (1d), since in ZG PPs are strong islands. Dative resumptives are the reflex of a realizational constraint operative in most German varieties that requires the overt realization of oblique case (see Salzmann 2006, 2008, 2009b for details).

Resumptives thus act as a last resort, occurring only when gap derivations fail. Since subjects and direct objects are realized by non-oblique cases, they do not have to be expressed overtly; resumptives are therefore not necessary. This statement has far-reaching implications. Since there is a mechanism which can produce resumptive structures, and since no obvious principle of grammar prevents resumptives for subjects/direct objects, we must assume that resumptive derivations converge for these relations as well.² But since only gap derivations are grammatical in these environments, we must conclude that they block resumptive derivations. Why this should be the case is addressed in Section 5. Competition implies that gap and resumptive relatives belong to the same reference set. This raises interesting questions about the definition of the reference set given that it is not clear whether gap and resumptive relatives involve identical numerations. This issue will be addressed in Sections 3 and 4.

2.2 Resumption involves base-generation

While base-generation approaches to resumption used to be the default, recent years have witnessed a number of movement accounts (see e.g. Pesetsky 1998, Aoun et al. 2001 and Boeckx 2003). I will opt for base-generation here because it explains the insensitivity to locality in ZG, as was illustrated in (2). As stressed in McCloskey (2002), this frequently attested property of resumption remains an insurmountable problem for movement accounts.³ Since I have extensively argued for this position elsewhere (Salzmann 2008, 2009a), I will simply adopt this position here.⁴

3. Base-generation with the reference set based on identical numerations?

This section discusses proposals that allow competition between gap and resumptive relatives based on the assumption that both involve the same numeration. This implies that the difference between gap and resumptive relatives obtains during the derivation.

3.1 The resumptive is added during the derivation (Aoun et al. 2001)

Aoun et al. (2001) propose a derivational implementation of base-generation whereby the resumptive is introduced during the derivation at the point where movement should take place from inside an island. They postulate an operation *Bind* which involves demerging the operator, re-merging it in the final landing-site and pronominalization in the extraction site. *Bind* is in principle also available in transparent domains, but in that case it is blocked by the movement derivation, which is taken to be more economical, both with respect to derivational (Fewest Steps) and representational (pronominalization) economy. This approach faces one major problem (cf. Salzmann 2009a for more detailed discussion): It predicts resumptives in intermediate positions in those cases where the operator undergoes A'-movement before encountering an island:

$$(3) \quad *[_{CP} C_{+wh} [_{ISLAND} [_{CP} Op_i [_{CP} \Theta_{P_i} \dots \Theta_{P_i}]]]]].$$

\Downarrow
 res

However, resumptives never occur in intermediate positions in ZG. This shows that the choice between movement and resumption cannot be made locally, and that a derivational implementation of base-generation is inadequate. Rather, we have to assume that an operator is directly merged in the operator position, binding a pronoun in the argument position. In other words, the numeration for resumptive relatives involves the (resumptive) pronoun. If we want to explain the competition between gap and resumptive relatives under the assumption that they are based on identical numerations, there is only one option left, namely that gap relatives are based on resumptive relatives.

3.2 The resumptive is part of the numeration (Van Riemsdijk 1989)

Van Riemsdijk proposes such an analysis for ZG relatives. He assumes that gap and resumptive relatives start out as resumptive relatives with a base-generated operator and a pronoun in-situ that is fronted to the left periphery and — in the case of subjects and direct objects — undergoes local deletion. The deletion operation

is assumed to be forced by the Avoid Pronoun Principle. There is solid evidence, however, that gap relatives are not based on resumptive relatives. First, while gap relatives readily allow for scope reconstruction, resumptive relatives do not. This is unexpected if the difference is just a matter of PF:

- (4) a. di [zwäi Mäitli], won ene [2 > ∀; ??∀ > 2]
 the two girls C they.DAT
 jede Bueb __ en Struuss muess bringe
 every boy a bunch.of.flowers must bring
 ‘the two girls that every boy must bring a bunch of flowers’
- b. di [zwäi Mäitli], wo jede Bueb muess __ sueche
 the two girls C every boy must look.for
 ‘the two girls that every boy must look for’ [2 > ∀; ∀ > 2]

Second, the relativization of non-individual-denoting types like amounts cannot be based on a resumptive derivation, since there is no pronominal source. Regular personal pronouns are not compatible with amounts; there is in fact no proper pro-form at all; the only way of referring to an amount like the one in (5) would involve an expression like *so lang* ‘this long’. It is unlikely, though, that such an expression would be at the basis of (5), because, unlike the weak pronouns posited for SU/DO-relativization, it would be too heavy to undergo fronting, so that deletion — being restricted to local configurations — would be impossible.⁵ It is therefore safe to conclude that resumptive relatives are derived by base-generation while gap relatives involve movement.

- (5) di [zwäi Wuche], won er __ i de Ferie gsii isch
 the two weeks C he in the vacation been is
 ‘the two weeks he was on vacation’

4. The reference set should be based on identical LFs

The fact that gap relatives block resumptive relatives for subjects and direct objects (recall the discussion in Section 2) implies that they compete with each other. Since a derivational implementation of base-generation is inadequate, and since gap relatives are not based on resumptive relatives, we have to conclude that movement and base-generation involve different numerations. But since there is competition, they must be in the same reference set. As a consequence, the reference set can no longer be defined on the basis of numerations.

Rather, we take these facts as evidence that the reference set should be based on identical LFs (cf. also Sternefeld 1997, Broekhuis 2008). At LF, intermediate traces will have been deleted, and the bottom copy of the movement derivation is

converted into a variable. Through binding by the operator, the resumptive pronoun will also function as a variable:

- (6) a. $[_{CP} Op_i \dots x_i] \rightarrow \lambda x \dots x$ movement
 b. $[_{CP} Op_i \dots pron_i] \rightarrow \lambda x \dots x$ base-generation

If the Copy Theory of Movement is adopted, there will be more material in the position of the variable in the movement derivation. After application of the Preference Principle, the LF of a movement derivation will look as follows:

- (7) a. $[_{CP} [Op NP] \dots [Op NP]] \rightarrow$ (Preference Principle)
 b. $[_{CP} Op_x \dots [x NP]]$

It is by no means obvious, however, whether (7b) can be considered identical to (6b). There is one approach to resumption in the literature that derives the desired result. In order to be able to capture reconstruction effects under base-generation, Guillot & Malkawi (2006) have proposed an NP-ellipsis analysis of resumptives where the resumptive is analyzed as a transitive determiner whose NP-complement is elided under identity with an antecedent: $[D \overline{NP}]$. Given these assumptions, the LF of the base-generation derivation will again be practically identical to (7b). The parallelism can be made even stronger by interpreting the lower copy of movement as a definite description, as in Fox (2002:67f.):

- (8) a. which boy Mary visited which boy \rightarrow Trace Conversion
 b. which boy λx [Mary visited the boy x] (= the boy identical to x)

I conclude from this that the LFs of movement and base-generation derivations are sufficiently similar to be part of the same reference set.⁶

The attentive reader will have noticed a potential contradiction between the facts in (4) and the claim that resumptive and gap relatives have identical LFs. Since resumptive relatives tend to disallow scope reconstruction while gap relatives do not, their LFs do not seem to be identical. It is therefore unclear why gap relatives should block resumptive relatives.⁷ Matters are slightly more complex, however: while resumptive relatives block the reconstructed reading, they do allow the specific/non-reconstruction reading; gap relatives also allow specific/wide-scope interpretations. Consequently, under the wide-scope interpretation, gap and resumptive relatives will have the same LF and gap relatives will block resumptive relatives. Competition is thus limited to wide-scope interpretations.⁸

5. Why do gaps block resumptives?

Basing the reference set on identical LFs is a precondition for competition between gap and resumptive relatives. What still needs to be explained is why gaps/movement block resumptives/base-generation for subjects and direct objects. I will show in this section that an approach which relies on classical Minimalist economy constraints is insufficient. Whatever it is that favors gaps/movement over resumptives/base-generation, it cannot be a universal constraint, given that there are languages where both strategies exist next to each other in identical environments. Furthermore, from the perspective of typology and acquisition, resumption is by no means marked (cf. Salzmann 2009a for details).

5.1 Cross-linguistic variation in the distribution of relativization strategies

There are languages which employ either gaps/movement or resumptives/base-generation only. More interesting, however, are those languages which use both strategies. Among these languages, there seem to be two groups. On the one hand, there are languages like ZG where gaps and resumptives occur in complementary distribution; in these languages resumptives are a last resort strategy and occur only when gap derivations fail. Languages belonging to this group are e.g. Colloquial Czech, Welsh, Breton and several languages in the sample of Keenan & Comrie (1977).

On the other hand, there are languages like Irish (McCloskey 1990) or Hebrew (Shlonsky 1992) which allow gaps and resumptives in the same environment, i.e. there is no complementary distribution. Irish allows gap and resumptive relatives in transparent positions such as matrix direct objects and embedded subjects/direct objects. (9) is an example with a matrix direct object:

- (9) a. an fear a bhuaíl tú b. an fear ar bhuaíl tú é
 the man aL struck you the man aN struck you him
 ‘the man that you struck’ (McCloskey 1990:205)

This state of affairs is highly problematic for a classical Minimalist approach that is based on the premises that economy constraints hold universally, i.e. favor the same type of structure/derivation in all languages. Since parametrization of economy constraints is usually not taken to be a possibility (Müller & Sternefeld 2001: 29), we would expect the constraint that favors gaps over resumptives in Zurich German to have the same effect in all languages. As the facts from Irish show, this is not correct. Additionally, there are languages like Palauan (cf. Georgopoulos 1985), which have resumption, but no gaps.

Rather, languages make different choices as to which strategy they prefer. This suggests that we need constraints which can be ranked with respect to each

other, making it possible to penalize both movement and base-generation. These are properties of Optimality-theoretic constraints. While I do not adopt a classical OT-framework (but rather the Derivations and Evaluations framework of Broekhuis 2008, cf. Salzmann 2008, 2009a), I will assume constraints with exactly these properties.⁹

5.2 Potential economy constraints

The constraints discussed in this subsection are those found in the literature on resumption. The first two constraints that will be discussed are insufficient because they are basically MP-constraints, and are thus not designed to interact with other constraints. Consequently, they are inadequate to account for the language variation (ZG vs. Irish). The third constraint can be interpreted as a violable constraint, but it is not applicable to the analysis of resumption proposed here.

5.2.1 *Last resort*

Resumption is often described as a last resort. While the notion of last resort is often appealed to, its theoretical status is somewhat unclear. A last resort is usually regarded as an operation which applies if (and only if) the derivation crashes otherwise. There is thus some translocal/transderivational meta-constraint that penalizes certain — often language specific — operations if there is an alternative — converging — derivation that does not involve this operation. A famous example is *do*-support.

In this specific sense, last resort cannot be appealed to to explain the ZG facts. First, resumption, especially under the implementation proposed here, is neither a language-specific operation (resumption is typologically unmarked) nor is it a repair operation that takes place during the derivation. Secondly, and arguably even more importantly, referring to last resort essentially begs the question of why a given operation should be penalized; in the case at hand, why should movement be preferred over base-generation? It would be desirable to find a deeper reason for this preference. In essence, last resort says that certain operations are uneconomical, but it does not say why. I conclude therefore that last resort is not a proper economy constraint, but just a descriptive device. It is therefore insufficient for the present analysis.

5.2.2 *Derivational Economy (Fewest Steps)*

Aoun et al.'s (2001) approach to resumption relates the preference for movement over base-generation to derivational economy, since under their analysis resumption involves more operations. In the base-generation analysis proposed here this is far from clear. Movement and base-generation involve the following operations

(I include all operations that are necessary to establish an operator-variable dependency to be able to compare the two derivations):

- (10) a. *Movement*: Merge (operator) + Copy (operator) + Merge (operator)
 b. *Resumption*: Merge (operator) + Merge (pronoun)

Given this, we would expect resumption/base-generation to be less costly than movement rather than the other way around. Resumption might additionally involve a binding operation to link the operator with the resumptive, but it is unclear whether this operation should be considered as it is arguably not a syntactic operation. But even if we did, this would still not make movement more economical than resumption. From a derivational perspective it is thus far from clear that movement is more economical. The previous discussion rather suggests the opposite.¹⁰

5.2.3 *Representational economy*

There are two relevant representational constraints which have been proposed in the literature, SILENTTRACE (Pesetsky 1998) and the Avoid Pronoun Principle (APP). Neither constraint can be applied here because their function is to compare representations which are identical except in the phonetic realization of one particular element, preferring the representation with zero phonetic content. These constraints are suitable only if gap and resumptive relatives are given essentially the same syntactic analysis, i.e. if both involve movement (SILENTTRACE), or if both are based on a resumptive derivation (APP, cf. 3.2). However, this is not the case in the proposal advanced here: Gap and resumptive relatives come about via very different operations, so that the resulting PF-representations are too dissimilar for the constraints to apply in any meaningful way. Concretely, SILENTTRACE cannot be used to penalize base-generation because base-generation does not involve a trace/copy. Conversely, the APP would appear to be inapplicable given that it normally chooses between overt and zero pronoun:

- (11) John₁ preferred [PRO₁/his_{1/2} going to the movies].

Since the movement derivation involves a trace copy rather than a silent pronoun, the APP has nothing to say about the competition. For the APP to be applicable, it would have to penalize pronouns in general, but this seems undesirable.

Apart from these difficulties, both constraints also fail because they refer to overtness. But crucially, the choice in ZG is not between overt vs. zero pronoun/variable but between two very different derivations, viz. between base-generation and movement. Additionally, as discussed in Salzmann (2009a), there are languages with silent resumptives. In such cases, neither SILENTTRACE nor the APP applies. I conclude therefore that representational economy is insufficient. See Salzmann

(2009a) for additional evidence showing that resumption and representational economy are independent dimensions.

5.3 Penalizing resumption by *Merge

I would like to propose a solution that crucially refers to the elementary operations of External Merge and Internal Merge. In the literature it is generally assumed that External Merge is given Preference over Internal Merge. However, as Broekhuis (2008) points out, not only is there little evidence that Move is inherently more costly from a purely conceptual perspective (both operations involve Copy), but languages also sometimes display the reverse preference. Consequently, he proposes two violable constraints, *MERGE (penalizing External Merge) and *MOVE (penalizing Internal Merge). These constraints can also be applied to our case: the ban on resumptive/base-generation derivations can be subsumed under *MERGE while gap/movement derivations are penalized by *MOVE. The variation in the preference for movement/base-generation then follows from different rankings. Specifically, I propose that *MERGE outranks *MOVE in ZG, while in Irish and Hebrew the two constraints are tied:

- (12) a. resumption as a last resort (ZG): *MERGE >> *MOVE
 b. optionality (Irish, Hebrew): *MERGE <> *MOVE

While this may look like a stipulation, there is independent evidence for this, in that the ranking in (12a) also accounts for certain facts regarding ZG negative sentences. Broekhuis (2008) argues for the violability of *MOVE and *MERGE on the basis of differences between English and Dutch: while the [+neg] feature is checked by means of movement in Dutch, it is checked by means of (External) Merge of an adverb in English:

- (13) a. Jan is [_{NEGP} over niemand]₁ ₁ tevreden.
 John is about no.one happy
 'John is not satisfied with anybody.'
 b. John is [_{NEGP} not] satisfied with anybody.

Broekhuis derives this difference by means of the ranking *MOVE >> *MERGE for English and *MERGE >> *MOVE for Dutch. Since ZG behaves like Dutch with respect to negation, we have independent support for the ranking *MERGE >> *MOVE. While the unification with sentential negation therefore supports the ranking for ZG, a precise investigation of the implications of the ranking in Irish and Hebrew has to be left for further research.

Even though I have presented an analysis in terms of economy, I actually believe that the notion of economy is inappropriate here. While the Merge-over-Move

principle (or *MOVE) is clearly an economy constraint, we seem to be dealing with something that is reminiscent of a parameter: if both operations are inherently equally costly, the computational system is confronted with an indeterminacy as to which of the two should be applied. As a consequence, languages have to make a choice to resolve the indeterminacy. And since the indeterminacy arises independently, the parametrization is not arbitrary, but simply unavoidable. What remains as a topic for further research is to investigate whether the choices languages make with respect to this “parameter” can be related to independent properties. This view is similar to a proposal in Müller (2009) where the order of application of the operations Agree and Merge on the vP-cycle is taken to be indeterminate, forcing languages to make a choice. According to Müller, this choice (expressed in terms of the relative ranking of violable constraints) is responsible for the distinction between ergative and accusative languages, and thus amounts to a parameter.

5.4 In favor of global/translocal constraints

The present proposal differs in one crucial respect from the system in Müller (and also from the original Merge-over-Move constraint) in that the constraints are global. While a local decision is perhaps possible for Broekhuis’ negation facts, this is not the case for resumption. If the choice between movement and base-generation has to be made locally, it will have to be made at the beginning of the derivation, given that the two derivations already differ from each other at this point (i.e. we find merger with either a resumptive pronoun or an operator). However, the information necessary for the decision is not yet available in the derivation. The relevant probe has not been merged and, more importantly, later islands may also influence the choice — but this information is not available either. Consequently, in the approach advocated here, complete representations must be compared in terms of how a given uninterpretable feature is checked, i.e. whether it is checked by External or Internal Merge.

6. Conclusion

The distribution of ZG relatives has important implications for the definition of the reference set. They show that gap and resumptive relatives compete for the relativization of subjects and direct objects. Given the analysis proposed here, this implies that movement and base-generation compete with each other. Since these derivations involve different numerations we concluded that the reference set must not be based on identical numerations, but rather on identical LFs.

Since gap relatives are grammatical for subjects and direct objects gaps only must be preferred by some constraint. I have shown that a classical Minimalist economy constraint is inadequate because (a) the existing constraints cannot be used to compare movement vs. base-generation candidates, and (b) the preference for movement over base-generation is not universal: in some languages, both strategies exist side by side in identical environments. This variation calls for violable and ranked constraints, so that both movement and base-generation can be penalized. While the ban against movement is expressed by *MOVE, the ban against resumption is subsumed under *MERGE, which has the more general function of penalizing External Merge. The ranking *MERGE >> *MOVE for ZG receives independent support from the way [+neg] is checked in negative sentences. The relative ranking between the two constraints is best understood as expressing parametric choices that result from an indeterminacy of the computational system.

Notes

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1. The distribution holds for most Swiss dialects, the only area of variation being datives, cf. Salzmann (2008/2009b). Long-distance relativization, where resumptives appear across the board, involves a different construction, cf. Salzmann (2006). Free relativization requires *wh*-relative pronouns that leave gaps, cf. Van Riemsdijk (1989). For Possessor relativization cf. Salzmann (to appear).

2. There is a line of research which argues that resumptives are barred from certain positions such as matrix subject/direct object due to A'-disjointness, i.e. bound pronouns must be free in a certain domain. This means that resumptive derivations are taken to crash contrary to what is claimed here, cf. e.g. Willis (2000:545ff.). For ZG such a solution is inadequate because we find resumptives in the case of indirect objects: Since indirect objects do not differ with respect to the least Complete Functional Complex from direct objects (in both cases it is the TP), the asymmetry cannot be derived.

3. Languages in which resumption is sensitive to locality are a different matter (see Boeckx 2003).

4. A major argument for a movement approach to resumption are reconstruction effects. These are also found in ZG, even in cases where the resumptive is located inside an island. This shows that reconstruction does not correlate with locality (pace Aoun et al. 2001), thus severely weakening the argument for movement. See Salzmann (2008, 2009a) for detailed discussion.

5. One reviewer argues that this argument is weakened by the following asymmetry:

- (i) the two weeks he went on vacation
- (ii) he went on vacation *(for) two weeks

Apparently, the null operator can replace a PP, which makes the ZG facts seem little surprising under a null operator analysis. While it is certainly correct that (i) and (ii) show that (5) does not argue against a null operator analysis as such, I believe that my criticism can be raised against Van Riemsdijk's specific implementation of the null operator analysis. In his analysis the operator does not originate in the base position of the amount expression and then move to Spec, CP. Rather, in his base-generation analysis the operator is directly merged in Spec, CP while some pro-form is generated in the base-position of the amount expression, which is then fronted, like weak pronouns. However, given that ZG lacks (weak) pro-forms for amounts, a base-generation derivation is not possible for such cases. In fact, it seems to be a more general property of languages that base-generation is ruled out with certain semantic types such as amounts. In other words, the data in (i) and (ii) argue in favor of a null operator *movement* analysis, which is precisely what is proposed here.

6. I use LF in a liberal sense of the term here, in that I assume that it also includes (the result of) processes like reconstruction that will be relevant for semantic interpretation. A more precise term would perhaps be LF-interpretation or LF-output. Adopting this notion of LF may not be innocuous, given that some movement operations, such as topicalization, do not have consequences for the truth-conditions of a sentence. If topicalized phrases are fully reconstructed, topicalization should be blocked by the in-situ variant. Consider the following example (Sportiche 2006, ex. 70):

- (i) A book it is obvious everyone will buy.

Since the topicalized indefinite can be in the scope of the universally quantified subject, one could argue that (i) has an LF that is no different from that of a sentence without topicalization. I will follow Sportiche in assuming that the information structural properties of the topicalized phrase do not reconstruct, so that a topicalized structure will have a different LF than a non-topicalized structure. As a result, there will be no competition, and topicalization is not blocked.

7. Under scope reconstruction the lower copy is not interpreted as a definite description (as in (8)), but rather as an indefinite description.

8. Consequently, one might expect dative relatives to be possible with gaps under a narrow-scope interpretation. This prediction is difficult to test because the PF-constraint requiring the realization of oblique case is not equally strong for all speakers (Salzmann 2008, 2009b). For some speakers, this constraint is so strong that only resumptive dative relatives are possible; for such speakers a narrow-scope interpretation in dative relatives does not seem to be possible. For speakers for whom the choice between gap and resumptive is essentially optional the prediction seems to be borne out.

9. An alternative that avoids violable constraints involves parametrization of the reference set, as suggested by Sternefeld (1997). While we could take identical LFs to be the basis for ZG, the reference set in languages like Irish would have to be based on identical numerations. Since gap and resumptive relatives then involve different numerations, they would not end up in the same reference set and would thus not compete, thereby accounting for the optionality in (9). I will not adopt this solution because its implications are difficult to assess, and because, as Salzmann (2009a) shows, an approach that is based on violable constraints also accounts for some additional phenomena in ZG.

10. One reviewer points out, correctly, that *Fewest Steps* could be interpreted as a violable constraint preferring base-generation, which is counteracted by some other, higher-ranked constraint favoring movement. However, my point is rather that it is not clear with which constraint *Fewest Steps* could be in conflict (something that is partly due to its MP-origin, it would seem). In the proposal outlined below, the conflicting constraints represent two equally economical options, which arise as a consequence of an indeterminacy of the computational system.

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