Counter-examples in Linguistics (Science), The Case of Circassian as a Split Anaphor Language

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1. Introduction. As anyone who has worked in linguistics can attest, counter-examples have had a distinctly weak role in the recent history of the field. Followers of Chomsky have maintained that for a counter-example to have force, it must come with its own full counter-theory. Curiously, Chomsky himself has always been more open to examining data on its own merits, but such distortions are not unusual in the history of any field. In effect, this position taken by many of his students rules out virtually all counter examples of any interest. I shall argue that this position, never articulated as far as I know in any formal document, is based upon an erroneous concept of the scientific enterprise. In effect the Chomskyan demand renders linguistics a doctrine rather than a science. A careful examination of science, chiefly physics in my case, leads to a number of distinctions between the verified assertions of a theory and those assertions that fail to fall within the theory. The case is not one of binary valued logic, of true and false, but of finer shades of accord or conflict. I shall posit the following distinctions in the logic of scientific inquiry:

(1) cognitive discord (conflicting interpretations of central aspects of a theory, including whether or not the theory "makes sense"),
(2) anomalies (facts lying beyond a theory),
(3) aberrations (facts that occur unexpectedly in familiar contexts),
(4) lacunae (facts that the theory may yet explain or predict),
(5) antinomies (incompatibilities between two ideas, perhaps within the same theory),
(6) antagonistic theories (incompatibilities between two theories),
(7) absences (lack of corroboration for a theory),
(8) theoretical errors (claims that are demonstrably errors in reasoning), and
(9) finally errors of fact (predictions that are demonstrably false through

counter example).

These various logical conditions have differing probative value for a particular theory and are related in complex ways, not necessarily exclusive. Examples are taken chiefly from physics to illustrate these, along with linguistic allusions where possible.

In linguistics I shall examine the binding of overt anaphors (reflexives and reciprocals) using data from Circassian, a language from the Caucasus. The canonical account of such anaphors is widely viewed as correct: they are not distinguished by syntax. Deviations from such behaviour should constitute an incompleteness in syntactic theory and require emendation or, where "fine tuning" fails, a shift in paradigm. In fact, when the deviant Circassian case was offered its significance was denied. Such denial of counter examples and the limited vision of the scientific method in modern linguistics have robbed the field of a good deal of logical or even probative force.

2. Unassailable theory. Some time ago, in the early years of GB theory, at a time when generativists were just beginning to branch out beyond English, I listened at a conference to a student of Chomsky discuss reflexives and reciprocals in Iroquoian languages. Hers was a good paper, but it simply confirmed the GB assertion that these two forms fell into the one category of anaphors, with their difference being merely semantic. I pointed out to her the Circassian data with the anticipation that she would find them interesting and challenging, but was surprised to see her dismiss my counter examples out of hand. I replied that as counter examples they were proof that something about anaphor theory was wrong. She countered that without a full theoretical alternative, my counter examples were worthless. Why? Because, as she went on to explain, that was how science worked. Clearly she had never done any science. Instead what she was enunciating as received doctrine, never published as far as I can tell, was an extension of Chomsky's early caveat that generative syntax in its founding years was incomplete and modest in its achievements if still great in its promise and ambitions, and therefore deserved some forbearance of its shortcomings. The precedent offered for this position was that of classical or Newtonian mechanics, which in its early years was unable to account for the precession of Mercury, but nonetheless was followed because its successes elsewhere made a case that the theory was promising.

This early appeal for patience was reasonable, because extension, modifications, and reinterpretations in a theory can enlarge its capacity in unpredictable ways. The later position was not. While scientists show career inertia much like any other profession, as with, say, behaviourist psychology which was long practiced after Chomsky effectively refuted its basic tenets, a refutation is a serious challenge. It is not a notice of a mere incompleteness. The practitioner must take it seriously and modify her theory so as to accommodate it, or if such accommodation is impossible, then she must abandon the theory at least in a provisional manner and seek an alternative. In short she claimed that a counter example demanded an alternative theory, either whole or in part. Without such an alternative, the counter example lacked any force. This was supposedly not a mere operational requirement, one needed to keep the scientist from despair, but rather part of the logic of science.

This encounter reflects merely one misconception of science once widely held in linguistics circles. In fact, a full scrutiny of science, here of necessity brief, drawing parallels between the hardest of sciences, physics, and linguistics, might help the linguist understand the force and value of much current work. The analysis is organized upon a provisional typology of difference and discord in the scientific effort.

3. Cognitive discord. In physics competing paradigms are usually competing conceptual models of functioning mathematical theories that in themselves differ for the most part only in detail. Perhaps the most familiar example of dispute over interpretation is that of the probabilistic interpretation of wave mechanics in quantum theory (Sudbery 1986: 178 – 226). This pitted Max Born, Werner Heisenberg, and Niels Bohr, who advocated a probabilistic interpretation of the wave theory of matter, against Albert Einstein, Erwin Schrödinger (who discovered the first wave equation), Louis de Broglie, and David Bohm, all of whom sought a more conventional materialistic interpretation of matter waves. Related to this dispute was that of determinism as opposed to indeterminism in quantum mechanics generally, typified by the long dialogues of Einstein and Bohr (Hoffmann and Dukas 1975: 182 – 200).

Interpretive disputes have been central to almost all of generative grammar and much of the progress in the field has come from finding interpretations that have led to deeper insights.

4. Causalism and Formalism. Perhaps the most extreme form of cognitive discord was exhibited early in the history of modern physics and involved the concept of action at a distance. This dispute took place between Isaac Newton and Gottfried Leibniz. Both men had invented the calculus independently. Newton had also invented dynamics and posited the law of gravity, which was written down as an "inverse square law." Newton was able to calculate orbits and explain astronomical dynamics, but at the expense of permitting two bodies to act upon one another from a distance, with n o intervening medium to transmit this force. Leibniz rejected this action at a distance as an absurdity, even though in 1600 William Gilbert had anticipated force acting through a distance in his work on magnetism (Mason 1956: 194-5). To Leibniz Newton's theory was incoherent, even though he, like Newton, accepted the effectiveness of the mathematics. The machinery and results of Newton's gravitational theory were not in dispute; rather the theory was seen as being incomprehensible in a fundamental cognitive way. Newton had no answer for Leibniz except that the theory worked (Ross 1984: 41; Alexander 1956: xviii – xx). He deliberately refrained from articulating an underlying cause (Cohen 1980: 79). This dispute might be termed that of causalism versus formalism, shown in the demand of Leibniz for a comprehensible cause behind the mathematical formalisms in contrast to the acceptance by Newton that the formal mathematics alone was sufficient to explain phenomena and produce more science. It was a divide between what could be termed cognitively accessible theories and mathematically productive theories. It persists in physics to this day (Holton 1978: 84 – 110; Frankel 1997: xxii – xxiii; Omnès 1994: 92 - 100), where some works have a distinctly causal tone, as for example, Bohm (1951), while others are archly formal, as with Mackey (1963). Progress in physics has been linked to the elaboration and development of formalism.

The most important linguistic parallel is Chomsky's initial challenge to the structuralist to go beyond the data to explain them in terms of universal language competence. Chomsky would have been a causalist. Progress in linguistics has been the mirror image of that in physics: it has followed the demand for ever wider and more general explanations of grammatical pattern.

5. **Incompleteness.** After disputes of interpretation the most common feature of science is incompleteness: the existence of facts or phenomena that the theory has not yet explained, but may yet explain or predict. Most, if not all, theories are incomplete. Normal science (in the Kuhnian sense) is driven by the expansion of theory and the concomitant inclusion of new phenomena.

At this stage of scientific progress, in the early stages of a paradigm, poor matches between theory and fact are tolerated in hopes of eventual elucidation within an enlarged theory.

This tolerance has typified most linguistic work, from the S(tandard) T(heory), to the E(xtended) ST, to the R(evised) EST, to Government and Binding, to Minimalism.

Certainly this is a reasonable position. In the history of physics the case of classical mechanics exhibits an anomaly in the precession of the orbit of Mercury. I shall return to this below. Maintaining the Newtonian agenda eventually led in the 19-th century to Maxwell's electromagnetic theory. Similarly, in the 20-th century early quantum mechanics could not explain hyperfine spectral lines, but holding steadfast to the new paradigm eventually led to the discovery of spin and an explanation of the these lines.

6. Limits. Some theories stipulate the limits of their applicability. These may not be apparent at first, but can emerge as the theory matures. Within linguistics, most semanticists assume that connotative meaning at the level of idiolects lies beyond the powers of analysis. In physics, two famous examples are that of general relativity, which predicts singularities where the theory itself no longer works (Wald 1984: 211 – 242; Hawking and Ellis 1973: 256 – 298; Misner, Thorne, and Wheeler 1973: 934 – 940; Penrose 1972: 69 – 71), and quantum mechanics, which, in the uncertainty principle, invokes complementarity between certain measurements, such as position and momentum (Liboff 1980: 52, 68; Cohen-Tannoudji, Diu and Laloë 1977: 50; Schiff 1955: 8). More generally but less recognized is the fact that all physics theories are "effective" theories (Kane 2000: 40 - 52), that is they work only within a certain range of reality. I shall also return to this principle when I discuss Mercury.

7. Anomalies. Some facts seem simply to lie beyond a theory. These are not merely cases of a theory being incomplete, but rather are cases where the data are so strange as to offer little prospect that the current paradigm will ever explain them. Such anomalies tend to be ignored by all but the most adventurous practitioners, because they bear the unwelcome tidings that a current paradigm must be wholly revised or even replaced.

In linguistics the best example is that of ergative languages in a paradigm that utilizes subject and object licensing (subject in "nominative", object in "accusative"), since ergative languages do not license subjects with a uniform case assignment. As long as a syntactic theory adheres to a configurational definition of subject as an external argument to a predicate no natural account of ergativity will be available.

Examples abound in the history of physics. In classical mechanics a containment potential contains anything within it (drop a marble into a cup and it stays there). In quantum mechanics, however, objects can tunnel through such potentials (Brandt and Dahmen 1995: 84 – 86, fig. 5.6; Cohen-Tannoudji, Diu, and Laloë, pp. 37, 74, 357). The high-energy jets observed issuing from some black holes are really not understood, though these are assumed to be due to an electromagnetic effect. Dark matter is required to account for galactic dynamics. It is not at all understood, never having been directly detected (Rowan-Robinson 1977: 136, §14), but it is assumed to arise from group (symmetry) splitting within super string or "D-brane" theory (Kane 2000: 299; Penrose 2004: 772-8).

8. Aberrations. Facts can occur unexpectedly in places a theory might stipulate as inappropriate or impossible contexts. Such "aberrations" are much like anomalies, but suggest that the accepted paradigm has been unduly restrictive in some way.

Perhaps the simplest example from linguistics is the English past-passive participle (PPP), which can show ergative-like behavior. Not all PPPs have active counterparts, as with "sodden mess" as opposed to *'I sod(ded) the mess.' 'Mess' behaves more like the subject of an intransitive verb. The PPPs in English, even those that have corresponding active verbs, more closely resemble ergative NPs wherein the fulfillment of transitivity is reflected by the absolutive licensing of the argument exhibiting the effects of that verb (subject of intransitives, direct object of transitives) (Colarusso 1992: 182 – 185).

Physics too shows aberrations. These can be of familiar phenomena in unexpected settings, as with high-temperature superconductivity. Superconductivity, albeit a complex phenomenon, was well understood, but its correlate above a few degrees Kelvin has resisted thorough understanding for almost twenty years now. An aberration can also be a familiar phenomenon in an unexpected theoretical framework, such as the dependence on a frame of reference of a body radiating in general relativity. A charged object falling into a black hole would experience no acceleration from its own reference frame other than the gravity of the black hole and so would give off no light, but seen from a distance it appears to be undergoing acceleration and would accordingly glow (Peierls 1979: 160 – 166). Such an effect has not been witnessed, but sets familiar thermodynamic effects in a novel context, so that their very nature becomes problematical. Finally, we can group here those effects where a novel phenomenon occurs in an unexpected environment. One of these is the positronium (e+ or positron with e- the electron) "atom." Theory predicted that such an odd "element" should occur and this was confirmed. It was an aberration, however, when it was found inside a metal (Peierls 1979: 137 – 146).

9. Antinomies. Conceptual incompatibilities can occur at the level of the model of a phenomenon or the interpretation of a theory. These might be termed "antinomies." Similar effects at the level of logic are termed paradoxes. Perhaps the best example in linguistics comes from semantics, where the apparatus for word meaning and that or sentential meaning stand in radical opposition (Allan 2001: 41 – 74, 381 – 417), and yet dictionaries demonstrate through paraphrasing of word meanings that semantic equivalence between the two levels is fundamental to language.

The best-known incompatibility between two ideas in physics is that of the wave – particle duality in quantum mechanics, although there are many other such dualities (Sen 1968). The photoelectric effect proves that light is made of particles because when shone onto a metal these photons knock off electrons of corresponding energy. Yet light also shows interference and diffraction, and so must be a wave. While it is possible to derive particle like behavior from waves

(Wald 1994: 46 – 52), or to represent a particle by waves (Hassani 1999: 204, §8.1.5; Arfken 1985: 481 - 485), the mathematical facts do not seem to sway causalist sensibilities and have led to bizarre and novel interpretations (Everett 1957). In classical mechanics the best example is that of determinism as opposed to chaos (Richtmeyer 1981, vol. 2: 276 – 311). The first example of indeterminate behavior was that of the 3-body problem (Mainzer 2004: 52 – 55; Goldstein 1980: 61, f.n. †). Historically it underlay the feud between Newton and John Flamsteed the Astronomer Royal regarding the position of the moon's rising (Christianson 1984: 365 – 372). What Newton calculated Flamsteed failed to find, because in fact the moon's exact orbit was indeterminate.

10. Theoretical incompatibilities. Conceptual conflicts are also frequent in science, but these usually occur during periods of crisis science and result in one concept replacing another through its enthronement at the heart of a new paradigm. Sometimes it seems that linguistic debates consist almost wholly of such incompatibilities, but the best one is that exhibited by Chomsky himself in the 1970s in which he argued for a genetic basis of the language capacity while denying that language had any significant phylogeny.

In physics a little recognized conceptual incompatibility was that of size. In classical mechanics there was no express limit on how small elements of the world could be, atoms being made of smaller articles and these of yet smaller ones *ad infinitum*, whereas in quantum mechanics there was assumed to be an absolute limit on smallness or fineness (Dirac 1958: 3 - 4). From this new assumption one could derive the principle of complementarity and indeterminacy: a system is absolutely small if it cannot be observed without the act of observation altering it. Another example is of the continuous nature of general relativity, wherein phenomena change smoothly as opposed to quantum mechanics, more specifically quantum gravity where discontinuities characterize small-scale events (Hawking and Penrose 1996: 61 – 73).

11. The Boundaries of a Theory. The sustained effort of science is devoted to the expansion of that which can be explained. Esthetic sensibilities also seek links or even identity among seemingly disparate phenomena. This is the beauty of science; this is how it offers insight. Of course, the expansion of a theory must be conducted so as to avoid theoretical incompatibilities by either limiting the extent of the domain to be explained or, in a seeming contrary manner, including more phenomena. For example, within physics quantum mechanics expanded its explanatory capacity to deal successfully with the absolutely small, but also insured its correctness by reaching classical mechanics in the limit as Planck's constant became insignificant, that is, quantum mechanics became classical in the limit of large sizes. Analogously, general relativity produced Newtonian celestial mechanics at speeds far below those of light, c.

A crucial and characteristic aspect of the program of normal science, particularly in physics, is twofold: the deduction of predictions from mathematical laws, the predictive power of science, and the explanation of existing data in terms of well understood, and familiar patterns, the explanatory power of science. Apart from generating unexpected parallels and equivalencies, the mathematics of physics has one other crucial consequence: it renders truth equivalent to fit. A theory is considered true to the extent that the data match its mathematical assertions. For this reasons approximations occupy a central role in much of physics. "Fit" can even exhibit substantial latitude, as for example when an "infinite constant" is taken to be zero (Lawrie 1990: 133). There is no other way to verify a physics theory. Two further consequences arise from this aspect. First, any given physics theory applies only within a certain range of reality, of size, energy, mass, etc. This is what Kane (2000: 9, 40 - 52) means by a theory being effective. Second, the process of matching data also entails tolerances between the numbers generated by theory and those found in the laboratory. Generally, what is considered a tolerable error is related to the overall scale of the theory, to its "range of reality." These can be quite close, even when dealing with celestial mechanics, but the error that would be dismissed in celestial mechanics as negligible is many orders of magnitude greater than its correlate in quantum mechanics. Reductionism has muddied the waters here. Just because one theory creates inputs for another, that is, just because one deals with a smaller scale that feeds into a larger does not imply that the larger is some sort of illusionary vision of the smaller, a mere artifact of the smaller. In so far as a theory exhibits an acceptable fit within its range of reality, just so does it represent that range of reality. The macroscopic world at low velocities and low gravities really is Newtonian because it behaves in a Newtonian fashion.

Theories, on smaller scales (quantum mechanics), or higher ones (general relativity) must show good fit in their range of reality, but must also grade over into the Newtonian system when their math deals with values characteristic of the Newtonian range. If they fail this limiting test, then they cannot be correct no matter how successful they might be within their own ranges.

Linguistic theory quite lacks this feature of scale. It has modules that must interface, and these might be viewed as rough analogues to the hierarchy of theories seen within physics, but throughout linguistics theories might be said to be digital and Boolean: they have elements that simply define one another through hierarchy and precedent, correctly or incorrectly. The only fuzziness linguistics has lies in the judgment of speakers, where forms may be ranked in terms of acceptability, but here too context often serves to reintroduce a true – false (acceptable – unacceptable) dichotomy.

12. Errors. Despite the best efforts of its practitioners any theory can be shown to have claims that are demonstrable errors in reasoning. Mistakes are a part of any effort; they are the noise of thinking. The linguistics journals have numerous examples of articles that come to conclusions based on data that actually support the opposite thesis, while others spin out theoretical claims that upon further reflection can be seen to be unsupported.

Physics has its share of errors too. Most people have heard of the study that proved that bumblebees cannot fly. Less familiar is one that argued that a mountain could not exceed 5,000 meters in height without exploding. Even more obscure is the fact that the hidden variable interpretation of quantum mechanics, which interprets quantum waves as statistical entities (Gell-Mann 1964: 169 – 172; Bohm 1951: 29, 114 – 115, 622 –623), can be shown to make false predictions in spectra and chemistry (Bethe and Jackiw 1968: 25 – 26). More troubling, however, is the fact that the hidden variable theory also predicts non-locality in quantum mechanical interactions (Peierls 1979: 25 – 29), and there is indeed new data to suggest that this is possible. So, this line of theoretical reasoning may yet be vindicated.

Theories fail, however, because of three chief problems:

13. Clutter. Science is driven substantially by elegance. Too many "elementary" particles (Cheng and O'Neill 1979: 22, 23, 25, 26, tables VII – XI) led to the acceptance of the quark model (Sudbery 1986: 15, table 1.2). A comparable development within linguistics would be the adoption of generative grammar. Taxonomic linguistics with its tagmemic account of syntax was simply too messy.

14. Absences. Lack of corroboration for a theory leads to its eventual abandonment. I can think of no cases in linguistics where a failure to find a predicted phenomenon led to a paradigm shift, but physics exhibits several examples. First, much money was spent over decades to find the elusive top/truth-quark, with the quark model being finally vindicated only in 1984 with the final discovery of the heaviest quark. To date, however, there has been no experimental evidence for another cornerstone of theoretical physics, super-symmetry, wherein matter particles and energy particles should each have their energy – matter opposites, (Kane 2000: 72 – 97), and should it fail to appear in its expected energy range, the quandary in physics will be severe (Kaku 1988: 17). Such a development might be comparable to the failure to detect the decay of the proton after much time, effort, and money. This led to the abandonment of the GUTs (Grand Unified Theories) and to renewed interest in string/(mem)brane theories (Polchinsky 1998, vol. 2: 355 - 356; Bailin and Love 1994: 142 – 148; Kaku 1988: 376), although some superstring writers were slow to abandon this prediction (Green, Schwarz and Witten 1987, vol. 2, pp. 499, 520).

15. Errors in prediction. Theoretical predictions that are demonstrably false by counter-example occupy a preeminent position in the logic of science, although not in biology. Many would say that if a theory cannot be refuted, then it is not a scientific theory. One such refuted claim in linguistics would be that languages with a high inflectional index tend to be lost as opposed to those exhibiting transparency, that tend to spread. A superficial knowledge of the Altaic family will convince the linguist that the highly inflected languages of this family also achieve transparency and have spread at the expense of almost every other language they have encountered. The theoretical prediction, high inflection → opacity, is false. The other obvious example is that of anaphors.

One example from physics put forward to promote a spirit of tolerance has been that of the orbit of Mercury, as mentioned above (§§ 4, 7, 8). I shall now examine this "paradigm" of forbearance in detail.

16. Mercury's orbit. Newton proved Kepler's laws, particularly the one regarding the elliptical nature of planetary orbits (Bressoud 1991: 4 – 16). Even in his *Principia* of 1686 (vol. 2, p.576, §30) Newton anticipates that these orbits will be subject to torques from the gravity of the other planets. Accordingly their aphelia and perihelia (points farthest and closest to the sun) will be subject to shifting. A planet in its orbit is a rotating object albeit with its axis of rotation outside its body, but the whole is still subject to wobbling just like a toy top. This wobble is due to a "perturbation" term in the potential energy of the orbit (Goldstein 1950: 509 – 512). This term represents the gravitational attractions of the other planets. The term "perturbation" itself flags the effect as being near the limits of the fit for an effective theory. The best account of the history of this perturbation is to be found in Weinberg (1972: 14 – 15). The discrepancy in Mercury's orbit was not discovered until the work of Jean Joseph LeVerrier in 1845, nearly two centuries after Newton's prediction of the effect. LeVerrier observed that the precession in the perihelion of Mercury was 38" (seconds of arc)/century faster than Newton's theory predicted from the known planets, Even his discovery (independently with John Couch Adams) of Neptune in 1846 did not offer sufficient new mass in the solar system to explain this counter fact to Newtonian celestial mechanics, These two years saw the first serious doubts cast upon Newtonian mechanics along with a splendid validation of it: Neptune's existence was predicted on the basis of irregularities in the orbit of Uranus. LeVerrier began to search for other planets between Mercury and the Sun, unsuccessfully. In 1882 Simon Newcomb corrected LeVerrier's reading to 43"/century. In 1895, only 50 years after LeVerrier's finding, Simon Newcomb suggested that Newton's theory was wrong. Both LeVerrier and then Newcomb had spent the intervening fifty years trying in vain to find missing planets, clouds of mass, and such. One H. H. Seeliger put forward in 1896 an extremely elaborate theory of clouds of dust (associated with the zodiacal light) that did explain Newcomb's finding. This seems to have satisfied Newcomb, but still within twenty years (1916) Einstein put forward his theory of general relativity. The calculation of Mercury's precession is most easily seen by assuming what is called a Schwarzschild metric (Callahan 2000: 426 – 432; Misner, Thorne and Wheeler 1973: 1110 - 1116), also published in 1916, but not used by Einstein. The effect is due to an extra term in the orbital equation resulting from the Einstein field equations. The term has a small value given the masses in the solar system and the relativistic effect is accordingly tiny, 42″.56 ± 0″.94 out of a total of 5599″.74 ± 0″.41, with the vast majority due to Newtonian effects of inertial frames of observation and planetary torques (*ibid.* p. 1113, box 40.3). 43″ of arc/century is a minute shift, especially since Mercury executes 415 orbits per century (Callahan 2000: 430). This tiny effect is not due to torque, but arises directly from the geometric distortion of space-time. This precession of 43″ of arc/century is an example of a limiting effect, where an effective theory of high energies, general relativity, has a slight trailing off at the lower energy regime of Newtonian mechanics (§6).

The case of the Circassian anaphors bears no resemblance to that of the precession of the perihelion of the orbit of Mercury. Neither did practitioners respond to Mercury's anomalous orbit in the way that my anonymous linguistic adversary did to the Circassian data. Doubts emerged immediately and a sustained search for an explanation was undertaken. Their effort formed one stream in what was to lead to one of the greatest revolutions of paradigm in the history of science. Let me conclude in the spirit of science by trying to sketch an explanation for these troubling linguistic data.

17. Split Anaphors in Circassian. Anaphors, reflexives and reciprocals, are both bound in their governing category (Haegeman 1991: 222 - 223), and with the known exception of propositional phrases ("They took pictures of themselves/of one another") are generally viewed as a well-established feature of syntax. They and their governing category have survived the shift from G & B to Minimalism (Radford 1997, 114 - 116). In fact anaphors are part of one of the best aspects, in the sense of predictive force, of modern linguistic theory, entering into a typology of NPs (Haegeman, p. 453; Radford, chapters 3 and 4).

In the various forms of Circassian, a group of languages and dialects native to the North West Caucasus, anaphors are bound in a conventional fashion. These languages distinguish between reflexives and reciprocals at a morphological level and at a syntactical one as well. They split their anaphors, and hence I propose to call them and others like them split anaphor languages.

Circassian is ergative, with pronouns showing ergative verb concord (1, a) and nouns showing ergative case marking as well (I1, b), (from Bzhedukh West Circassian with surface forms of verbs in brackets at the end of the line).

(1) Ergativity

a. S O o-s-V [ergative morphology, -qa- omitted from schema]

sa wa wə-qa-s-ƛāɣ˚a-ɣa

I you you-hor(izon.of.interest)-I-see-past

'I saw you.'

b. S O o-s-V [ergative case marking]

ƛ'ə-m ḥa-x̂ˤa-r ø-qa-yə-ƛāɣ˚a-ɣa-ha

man-erg dog-pl-abs 3(dogs)-hor-3(man)-see-past-plural

'The man saw the dogs.'

Reflexives behave like any other R-expression ("referential expression," nouns, pronouns, etc.), (2).

(2) Ergative reflexive syntax and verbal concord

a. S-erg O-abs o-s-V

ƛ'ə-m yəžʸa-r zə-qa-yə-ƛāɣ˚ə-žʸə-ɣa [zəq̄īƛāɣ˚ížʸə́ɣ]

man-erg(ative) self-abs(olutive) self-hor(izon)-3-see-past

'The man saw himself.'

b. sa yəžʸa-r zə-qa-s-ƛāɣ˚ə-žʸə-ɣa [zəqɛsƛāɣ˚ížʸə́ɣ]

I self-abs self-hor-I-see-past

'I saw myself.'

By contrast reciprocals fall into an "anti-ergative" pattern of syntax and verbal concord, (3), (wherein *t* stands for a general trace).

(3) Anti-ergative reciprocal syntax and verbal concord

a. S (O) s-o-V

ta _t_ tə-qə-zara-ƛāɣ˚ə-a-žʸə-ɣa [təqəzɛrɛƛāɣ˚ížʸə́ɣ]
we (reciprocal trace) we-hor-reciprocal-see-intrans(itive)-past
'We saw one another.'

b. S-abs (O) s-o-V
ƛ'ə-ha-r _t_ ø-qə-zara-ƛāɣ˚a-ɣa-ha [qəzɛrɛƛāɣ˚ə́žʸíɣáx̂ˤ]
man-pl-abs (reciprocal trace) 3-hor-reciprocal-see-past-pl(ural)
'The men saw one another.'

The constructions in (3) exhibit the anti-ergative patterns used by these languages to denote actions where transitivity has been reduced (Colarusso 1992: 177), (4,b), or where the subject is low animacy/volition (*ibid.* p. 184), (4, d, e).

(4) Anti-ergative constructions

a. ś˚əz-əm ǯʸaana-ha-r ø-qa-yə-də-ɣa-ha [qīdə́ɣáx̂ˤ]
woman-obl(ique) shirt-pl-abs(olutive) 3(pl)-hor-3-sew-past-pl
The woman sewed the shirts [completed action].

b. ś˚əz-ar ǯʸaana-ha-m-a ø-q-y-ha-a-d-a-ɣa [qādā́ɣ]
woman-abs shirt-pl-obl-pl 3-hor-3-pl-at-sew-intrans-past
The woman was busy sewing at the shirts [incomplete action].

c. ƛ'ə-m psə+x̌˚ə-m ḥa-ha-r ø-q-ø-yə-yə-tḥaλa-ɣa-ha [qərītḥɛλā́ɣáx̂ˤ]
man-erg water+flow-obl dog-pl-abs 3(pl)-hor-3(river)-in-3-drown-past-pl
The man drowned the dogs in the river.

d. (*)psə+x̌˚ə-m ḥa-ha-r ø-qa-yə-tḥaλa-ɣa-ha [qītḥɛλā́ɣáx̂ˤ]
water+flow-erg dog-pl-abs 3(pl)-hor-3-drown-past-pl
The river drowned the dogs.

e. ḥa-ha-r psə+x̌˚ə-m ø-ø-šˤʸ-yə-tḥaλa-ɣa-ha [šˤʸītḥɛλā́ɣáx̂ˤ]
dog-pl-abs water+flow-obl 3(pl)-3(river)-there-3(river)-drown-past-pl
The river drowned the dogs.

f. ḥa-ha-r psə+x̌˚ə-m ø-ø-x̂a-tḥaλa-ɣa-ha [x̂ɛtḥɛλā́ɣáx̂ˤ]
dog-pl-abs water+flow-obl 3(pl)-3(river)-in.a.mass-drown-past-pl
The dogs drowned in the river.

In (4, d) the subject is low animacy with ergative syntax and concord, but it is marginally acceptable. By contrast (4, e) has intransitive syntax with the logical subject as an indirect object. It retains ergative verbal concord, but also reflects the demoted subject by an adverbial deictic adjunct, /-ø-š$^{ʕ y}$-/ -3-there-. So constructed (4, e) is fully acceptable, as is (4, f), its simple intransitive correlate. The relevance of (4, f) will become apparent at the end of this paper. For now one should note that the deictic adjunct is in a concord slot between the direct object and the indirect object (if any) and subject, that is the concord order is in (5):

(5) Concord order in the verb
do-horizon-adjuncts-io-s-causal.agent-causal.prefix-root-

Note too that low animacy subjects cannot take the horizon of interest prefix /-q(a)-/, since this implies a deliberate verifiable action that affects the subjects interests in the absolutive object. Low animacy subjects do not meet the criteria for horizon. As obscure as these points are, they will prove to be the explanation for the reciprocal forms in (3).

I hypothesize that the Circassian reciprocal is distinct from the reflexive only at morphological level, and that syntactic effects are secondarily due to a constraint that forces the sentence into accord with the morphology. By the limits principle of §6, I think that what this language is doing is showing elaborate argument effects that in this one case also spillover in a minor way into syntax.

18. Morphological arguments. Verbs seem to carry overt argument structure that for many of them may vary by valence. Something like the G&B projection principle determines the syntactic role such verbs may fill. The syntax then offers adjuncts, though the constraints on what adjuncts can go with which verbs is below the argument level of denotative semantics, and is closer to the level of connotative semantics. Many Circassian verbs have morphological arguments (obligatory inflections). Contrast (6, b) with (6, c). These need not have syntactic correlates, but when they do these are syntactically adjuncts, (6, a).

(6) Morphological arguments

a. S IO s-io-V

ś°əz-a-r ʔana-m ø-yə-ś°ə-ɣa [yʊś°ʊ́ɣ]

woman-th.v-abs table-oblique she-it.on-dance-past

'The woman danced on the table.'

b. S s-io-V

ś°əz-a-r ø-yə-ś°ə-ɣa [yʊś°ʊ́ɣ]

woman-th.v-abs she-it.on-dance-past

'The woman danced.'

c. *S IO s-V

ś°əz-a-r ø-ś°ə-ɣa [ś°ʊ́ɣa]

woman-th.v-abs she-dance-past

'The woman danced.'

The examples in (6) suggest that morphology takes precedence over syntax in Circassian, more specifically, that morphological inflection is primary. The "personal indices" show no evidence of being clitics, save for the benefactive (Colarusso, in press, p. 26, (33, b). They are direct expressions of the semantics of the verb. They may b termed "inferred arguments,' that is, some one must dance somewhere, and while obligatory morphologically, they may be omitted as words. Only a few sentential adjuncts seem to emerge from a process of copying a coreferential personal index onto the verb. These all fall between the initial absolutive index and any subsequent oblique argument indices that may precede the verb root (Colarusso in press, pp. 20 – 22, (30), (31); Colarusso, 1992: 74, (134)).

19. Index scrambling. In (7, d, e) reciprocals force the syntax into anti-ergative patterns. A di-transitive, (7, b), shows that this process is a morphological transformation or "mutation" if one wishes a different term for this level of grammar, although formally the process is no different from that in syntax (Colarusso in press, p. 26, (33); Colarusso 1992: 110 – 114). The structure of (7, b) is that of (7, c), where the trace of the original subject index before the verb root is marked with a causative marker, /-ɣa-/, since this is the only fashion for marking a four-argument verb, as in (7, d).

(7) Circassian di-transitives:

a. S IO DO do-io-s-V:

ƛ’ə-ha-m-a ś˚əzə-ha-m-a tx̂əƛ-ha-r

man-pl-obl-pl woman-pl-obl-pl book-pl-abs

ø-qə-y+ha-a-y+ha-tˁə-ɣa-ha [qārātˁíɣáx̂ˁ]

3.pl-hor-3+pl-to-3+pl-give-past-pl

‘The men gave the books to the women.

b. S reciprocal.trace DO s-io-agent-causative-V:

ƛ’ə-ha-r t̲ tx̂əƛ-ha-m-a

man-pl-abs reciprocal.trace book-pl-obl-pl

ø-qə-zara-y+ha-ɣa-tˁə-žʸə-ɣa-ha [qəzarāɣatˁížíɣáx̂ˁ]

3-hor-reciprocal-3+pl-cause-give-back-past-pl

‘The men gave the books back to one another.’

c. S reciprocal.trace.IO DO(in oblique!) s-reciprocal.adjunct-do-t̲-cause-V

ƛ’ə-ha-r t̲ tx̂əƛ-ha-m

man-pl-abs NP-trace book-pl-obl

[[$_S$ ø-]qə- [$_{ADJ}$ zara-] [$_{DO}$ y+ha-a-] [$_S$ t̲-ɣa-] tˁə-žʸə-ɣa-ha]

3.pl-hor-reciprocal-3+pl[books]-to-index.trace-causative-give-back-past-pl

d. AG S IO DO do-io-s-ag-V:

sa ƛ’ə-ha-m-a ś˚əzə-ha-m-a tx̂əƛa-ha-r

I man-pl-obl-pl woman-pl-obl-pl book-pl-abs

ø-qə-y+ha-a-y+ha-a-s-ɣa-tˁə-žʸə-ɣa-ha [qɑ·rɑ·zɣatˁɪ́žɪ́ɪɣáx̂ˁ]

3.pl-hor-3+pl-to-3+pl-dative-I-cause-give-back-past-pl

‘I made the men give the books back to the women.’

20. Repeated referent. The behaviour in (7) is deviant from the predictions made about the unity of anaphors. It is also complex and odd. I suggest that insight into the scrambling seen in (7, b) lies in the repeated reference suffix /-žʸ-/

'back, again' that occurred in the reflexives in (3) as well. This appears on a verb when an argument in a discourse has been repeated (8, a), or, more to my purposes, when a predicate has been repeated (8, b).

(8) Repeated reference and /-ž^{y}-/

a. Repeated argument
ƛ'ə-a-r ś°əzə-m ø-qa-y-a-psaaƛa-ž^{y}ə-ɣa [qe·psɛƛέžíɣ]
man-thematic.vowel-abs woman-obl 3-hor-3-to-speak-again-past
The man spoke to the woman again.

b. Repeated predicate
ƛ'ə-a-r ø-qa-šx̂ə-ž^{y}ə-ɣa [qɛšx̂íží ɣ]
man-thematic.vowel-abs 3-pl-hor-eat-again-past
The man ate again.

21. The ergative precedence principle. If we take the referent of a verb to be a predicate that has undergone a process of symmetry breaking whereby one of its arguments becomes external (to the left, and assigned an absolutive), then we can represent the Circassian morphology in this way. As a first step toward morphology (at the semantics – morphology interface) the semantic predicate Pxy breaks its symmetry by assigning the absolutive to the argument that fulfills the denotative semantics of P (the language is ergative). I use '|' as a symmetry breaking operator, thus Pxy → y.abs-|Px. In this I have ordered the arguments after the predicate in order from agentive to patient, so that the semantics of P's effect have as their denotative goal the right hand most argument, y. This precedence is the core semantic structure of an ergative language. Animacy hierarchies, volition, horizon of interest, completeness of action all interact with this precedence and cause variations from the canonical ergative pattern. I term this the "ergative precedence principle." This is a semantic principle with far-reaching effects in morphology and syntax. Any intervening argument in a di-transitive predicate has some semantic effects from the action, but does not fulfill the predicate's action.

22. Di-transitive shuffling. If my predicate level analysis of ergativity is correct, then we would expect movement of NPs to have minor effects on transitivity. Notably, the sort of shuffling that we see in di-transitives in a language like English occurs also in Circassian, but with relatively minor effect (Colarusso 1992: 174). It is overshadowed by morphological effects. Even if an indirect object occurs before the verb, no index shuffling occurs and the sense is altered, as in English (9, b), but with less force. It is the absence of the horizon of interest prefix /-q(a)-/ that signals a greater degree of effect upon the woman; the man' has relinquished his interest in the book (9, c).

(9) Circassian di-transitive shuffling as a null-process

a. ƛ'ə-m ś°əzə-m tx̂əƛ-a-r ø-q-y-a-yə-tˤə-ɣa [qəri·tˤə́ɣ]
man-obl woman-obl book-th.v-abs 3-hor-3-to-3-give-past
The man gave the book to the woman

b. ƛ'ə-m tx̂əƛ-a-r ś°əzə-m ø-q-y-a-yə-tˤə-ɣa [qəri·tˤə́ɣ]
man-obl book-th.v-abs woman-obl 3-hor-3-to-3-give-past
The man gave the book to the woman.
or
The man loaned the woman the book.

c. ƛ'ə-m ś°əzə-m tx̂əƛ-a-r ø-y-a-yə-tˤə-ɣa [(ye)ri·tˤə́ɣ]
man-obl woman-obl book-th.v-abs 3-3-to-3-give-past
The man gave the woman the book.

23. Symmetry breaking.[1] If the predicate is intransitive, then the process is merely Px → x.abs-|P. To the left of the arrow is a semantic structure with precedence among its arguments, but where order, left to right or right to left, is merely an artifact of presentation; to the right of the arrow is a morphological structure where an argument has assumed the pre-root (language specific) position of an inflection. This morphological object then controls a syntactic

[1] I am indebted to Lyle Jenkins for suggesting to me that the ideas of symmetry and symmetry breaking might be important in linguistics and not just in physics. The theoretical machinery that I have set up in §19 is entirely the product, however, of my own fancy and Lyle shares no liability for it.

structure where the subject (external argument of the syntax-tree) coincides with the absolutive external argument of the predicate.

If the predicate is transitive, then the process is Pxy → y.abs-∣Px, and projection assigns [y] to the internal syntactic node, but the direct object retains its absolutive marking. In other words, as an ergative language, its case marking does not license the subject and object, but rather reflects the semantic argument assignments at the predicate level. I summarize this dynamic in (10), where I use '∣'as a boundary mark for symmetry breaking, with x.abs denoting the argument that fulfills the verbal sense.

It is a detail of Circassian verb inflection that the personal indices all come before the verb root, though this is common enough (French, Russian, Bantu languages all have similar patterns with pronominal clitics). One might wish to write the semantic predicates as zyxP, and have symmetry breaking for transitive fulfillment as z∣yxP, thereby collapsing the derivations in (10, b, c), but Pxyz is more familiar from logic texts.

(10) Symmetry Breaking in an Ergative Language

a. Intransitive predicate

∣Px → x.abs-∣P

b. Transitive predicate (2 cycles)

i. ∣Pxy → y.abs-∣Px

ii. y.abs-∣Px → y.abs-x.obl-∣P (do-s-V)

c. Di-transitive predicate (3 cycles)

i. ∣Pxyz → z.abs-∣P-xy

ii. z.abs-∣Pxy → z.abs-y.obl-∣Px

iii. z.abs-y.obl-∣Px → z.abs-y.obl-x.obl-∣P (do-io-s-V)

Thus, there is a fundamental difference in function between morphology and syntax in an ergative language like Circassian. Morphology is semantically driven at a denotative level. Syntax obeys discourse criteria and connotative semantics.

24. Repeated referent principle. The only way in which "denotative morphology" is sensitive to discourse is when one of its arguments has a repeated referent within a governing category, that is within a predicate, | Pxx, which leads to reflexive.abs- | P(-ž^{y}-)-x. Note that the projection principle must link morphological argument structure with the syntactical argument structure through analogous case-markings.

Beyond the governing category connotative criteria allow the speaker to designate two predicates as forming essentially the same act, usually through common direct objects: [$_{\text{Discourse}}$ | Pxy … | Pxy] → [$_{\text{D}}$ y.abs- | P-x … y.abs- | P-ž^{y}-x]. It is crucial to understand that in discourse the first predicate may be implied, and not overt, as in (8, b). This can be the case for either side of the arrow, the left being semantic, and the right being morphological. I summarize the repeated reference principle in (11).

(11) Repeated referent principle

a. Simple reference (predicate is co-extensive with governing category)
   | Pxx → reflexive.abs- | P(-ž^{y})-x
   reflexive.abs- | P(-ž^{y})-x → reflexive.abs-x.obl- | P(-ž^{y})

b. Extended reference (discourse domain can exceed governing category)
   [$_{\text{Discourse}}$ | Pxy … | Pxy] → [$_{\text{D}}$ y.abs- | P-x … y.abs- | P(-ž^{y})x]
   [$_{\text{D}}$ y.abs- | P-x … y.abs- | P(-ž^{y}-)x] → [$_{\text{D}}$ y.abs-x.obl- | P … y.abs-x.obl | P(-ž^{y})]

25. How reciprocals satisfy the repeated referent principle. Such an implied antecedent seems to underlie reciprocals. One has [$_{\text{Discourse}}$ Pxy … Pyx], for example, with P = see, this would be semantically 'x SEE y … y SEE x, with no need for more than one overt SEE. This sequence satisfies the repeated referent principle, but causes ambiguity with respect to the ergative precedence principle. The transitivity is not reduced, as has sometimes been claimed as an explanation for intransitive reciprocals, as much as it has become doubled. Instead I assume that the transitive fulfillment of an argument precedes the repeated reference process (assignment of reflexives and reciprocals).

Using the predicate schemes in (10) and (11) we can now explain the behaviour of 2-place and 3-place reciprocals, (12). We need only add a pluralizing principle (a reasonable discourse function, not in conflict with inherent plurals, $\{x_i\}$) to consolidate arguments with multiple referents: If x and y found or implied in a discourse can occupy the same slot in the ergativity precedence, then they appear as a new plural argument [x+y]. We can now see why (3) and (7, b) work as they do.

(12) 2-Place and 3-Place Reciprocals under the Pluralizing Principle

a. 2-Place

i. Pluralizing

$[_D$ Pxy … Pyx] → P[x+y][x+y]

ii. Symmetry breaking for transitive fulfillment

| P[x+y][x+y] → [x+y].abs- | P[x+y]

iii. Repeated referent

[x+y].abs- | P[x+y] → [x+y].abs- | P(-ž^y-)reciprocal

iv. Inferred Argument

[x+y].abs- | P(-ž^y-)reciprocal → [x+y].abs-reciprocal.obl- | P(-ž^y-)(s-io-V)

b. 3-Place

i. Pluralizing

$[_D$ Pxyz … Pyxz] → P[x+z]y[x+z]

ii. Symmetry breaking by externalizing

| P[x+z]y[x+z] → [x+z].abs- | P-[x+z]y

iii. Repeated referent

[x+z].abs- | P-[x+y]y → [x+z].abs- | P(-ǯ^y-)reciprocal-y

iv. Inferred Argument (2 iterations)

[x+y].abs- | P(-ž^y-)reciprocal-y →

[x+y].abs- | y-obl- | P(-ž^y-) reciprocal

[x+y].abs- | y-obl- | P(-ž^y-) reciprocal.obl →

[x+y].abs- | y-obl- reciprocal.obl- | P(-ž^y)

Because transitive fulfillment precedes repeated referent, that is, because the repeated referent is derived, the simple personal index appears in the absolutive (external slot), while the anaphor, now an inferred argument, appears in the oblique. By contrast, the reflexive argument cannot be inferred. This is why reciprocals and reflexives are split in Circassian. One can imagine that in other ergative languages transitive fulfillment follows repeated referent, in which case anaphors are not split. Only ergative languages can split anaphors. This phenomenon is linked to the inferred morphological arguments (6, a, b), attesting to some modest explanatory force on the part of this new theory.

26. Morphological shuffling of 3-place reciprocals. The end product of (12, b, iv) is (13 a). This is not found because the oblique subject has been superceded by one in the absolutive (the initial index). The direct object is in an internal, indirect object position, and may have a dative suffix that is submerged by phonological processes. Such an oblique subject undergoes a shift to the adjunct (second after horizon) position, as in (13, b), following (13, c, d). It leaves an argument, *arg*, trace in three place verbs because it retains its argument structure even in adjunct slot. The demoted subject in (13, d) leaves no trace because it is governed by the aversive postpositional suffix, /-f-/, in contrast to the form in (13, e) where the subject has retained its normal status and the disability is expressed through a suffix .

(13) Shuffling of demoted subject

a. s-…-do-reciprocal-V:
   *tə-qə-y+ha-(a-)zara-tˤə-žʸə-ɣa-ha [təqɑ·zaratˤɪ́žɪ́ɣɑ́x̂ˤ]
   we-hor-3+pl-(dative-)reciprocal-give-back-past-pl
   We gave them back to one another.
b. s-…-reciprocal-do-trace-cause-V:
   tə-qə-zara-y+ha-(a-)<u>arg</u>-ɣa-tˤə-žʸə-ɣa-ha [təqəzɛrɑ·ɣatˤɪ́žɪ́ɣɑ́x̂ˤ]
   we-hor-reciprocal-3+pl-(dat-)argument.trace-cause-give-back-past-pl
   We gave them back to one another.
c. do-…-io-s-for-V:
   *ø-qə-w-a-s-fə-tˤə-žʸə-ɣa-ha-p [qwosfətˤɪ́žɪ́ɣɑ́x̂ˤɑ́p]

3.pl-hor-you-to-I-for-give-back-past-pl-not
I am not inclined to give them back to you.

d. do-…[$_{AD1}$-s-for-]io-V:
ø-qə-s-fə-w-a-tˤə-žʸə-ɣa-ha-p [qəsfuwotˤɪ́žɪ́ɣɑ́x̂ˤɑ́p]
3.pl-hor-me-for-you-to-give-back-past-pl-not
I am not inclined to give them back to you.
literally, "For me not [to] give them back to you."

e. do-…-io-s-V-able-…:
ø-qə-w-a-s-tˤə-ś°ə-žʸə-ɣa-ha-p [qwostˤʊ́ś°ʊ́žɪ́ɣɑ́x̂ˤɑ́p]
3.pl-hor-you-to-I-give-able-back-past-pl-not
I cannot give them back to you.

28. Conclusion. The typology of categories, empty and overt (Haegeman 1991: 453) is one of the triumphs of G&B. It is tight and rigorous, even predicting that one slot will be empty (that with the conflicting components [+anaphor, +pronominal]). The only way to add to it would be to use another feature and create a four dimensional matrix: [±anaphor], {±pronominal], [±overt], [±X]. In a way Circassian presents a worst-case scenario for this scheme. Circassian anaphors split in both morphology and syntax, although they do not violate anaphor-binding conditions. This implies that governing category and the binding principle do not define the typology of NPs, overt or covert, nor do these features determine the syntax of split anaphors. I have argued that the other factor entering into Circassian has been reference, but to expand the category table by another dimension would be to create at least 14 slots, and this is far too many.

I propose three emendations to the theory of categories in G&B and to the Minimalist effort insofar as it maintains category theory. First, I propose anaphors and perhaps other categories are not basic, but rather are derived from more basic semantic and morphological processes involving symmetry breaking of semantic predicates. That symmetry breaking may be fundamental to language can be seen from the contrast between language and symbol. Language conveys predicates and predicates relate one argument to another in some precedence, "X does V to Y," or "X Vs Y." By contrast symbols have symmetry; any predicates come afterward as inferences on the part of the perceiver. Second, I propose that symmetry breaking processes can show language specific ordering. These processes interface with basic syntactic principles for retrieving reference, but in complex ways. Third, and more profoundly, I propose that for at least some languages morphology will take precedence over syntax, particularly in those cases where semantic derivations are at work to force morphological patterns into differentiated forms.

My suggestions may prove wrong under further scrutiny, but the inadequacy of category theory, specifically of anaphor theory, was self-evident back when I first looked at Circassian. Circassian anaphors were a forceful counter example then, and remains so now, even with a small theory to go with them. They could only have been dismissed as cognitive discord, with one theorist taking them to be syntactical and the other as morphological, though as an interpretive issue no resolution would have been possible. They were not anomalies; they did not lie beyond the theory; they were clearly anaphors. Clearly they were an aberration; they were not expected. They might have been construed as evidence for lacunae in the canonical theory, save for the fact that there was no evident way to accommodate them to that theory: the anaphors were part of an array of nouns, pronouns, and various traces that resulted from the binary interplay of features. To add another feature would have been to produce clutter in the table with most new forms exhibiting absences, that is, no possible confirmation. A formalist accommodation might merely have marked them as odd deviations in some parameter, but a causalist instinct would have sensed that they offered insight into an aspect of grammar. In this causalist sense they were an antinomy to the canonical anaphors and any theory explaining them would necessarily be antagonistic: it would replace in part or in whole the canonical theory. The canonical theory had had substantial corroboration for its treatment of anaphors; it could not failed for lack of evidence. The canonical theory was also correctly reasoned given its premises. The logical rigour of that theory rendered it incapable of accommodating Circassian. The only solution was to seek a more profound level of explanation of which the canonical theory was in some way derivative.

In fact, it was this elegance of logic that made the split anaphors of Circassian important: They were that most vital of findings: they were counterexamples. They showed the canonical theory to be wrong in fact. A counter example has force entirely by virtue of being a counter example to a theory. With an accompanying alternative paradigm it is more useful, but not more forceful. Counter examples are to be heeded, not denied as theoretical orphans.

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