The Urge to Merge:
Ritual Insult and the Evolution of Syntax

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Throughout recorded history, sexually mature males have issued humorous insults in public. These 'verbal duels' are thought to discharge aggressive dispositions, and to provide a way to compete for status and mating opportunities without risking physical altercations. But, is there evidence that such verbal duels, and sexual selection in general, played any role in the evolution of specific principles of language, syntax in particular? In this paper, concrete linguistic data and analysis will be presented which indeed point to that conclusion. The prospect will be examined that an intermediate form of 'proto-syntax', involving 'proto-Merge', evolved in a context of ritual insult. This form, referred to as exocentric compound, can be seen as a 'living fossil' of this stage of proto-syntax — providing evidence not only of ancient structure (syntax/semantics), but also arguably of sexual selection.

Keywords: evolution; exocentric compounds; proto-syntax; ritual insult; sexual selection

1.   The Problem with Syntax

Doubt has been expressed that complex syntactic patterns conferred communicative benefits on our evolutionary ancestors and, therefore, evolved by way of natural or sexual selection (e.g., Bickerton 1990, 1998, Lightfoot 1991, Berwick 1998, Newmeyer 2003). This doubt comes primarily from the observation that the principles of grammar, especially syntax, seem rather abstract and arbitrary, and are thus not easily amenable to evolutionary forces such as selection. Under the circumstances, it makes sense to look elsewhere for an explanation, such as verbal complexity or display (Locke 2008, 2009), or to consider the most basic (proto-)syntactic combinations (Progovac 2006, 2008, 2009). Here, we consider the possibility that a specific form of 'proto-syntax' evolved in a context that included a particular type of verbal display — ritual insult. We present a type of compound, the *exocentric* compound, which can be seen as a 'living fossil' of this stage of proto-syntax. While our paper cannot provide physical proof that sexual selection played a role in reinforcing proto-syntax, it points to places where such

proof can be sought, and it opens up new ways in which linguistic data can be used to raise questions, and formulate hypotheses, about language evolution.

2.   Verbal Dueling

Throughout recorded history, sexually mature males have issued humorous insults in public. An ancient form, "flyting," occurred in the *Iliad, Beowulf, Canterbury Tales*, and many other early texts (Parks 1990). In Old Norse, one type of flyting was called *mannjafnaðr* 'man-matching' (or 'man-comparison'). The term derives from a legal procedure used by surviving relatives to "assess the cash value of slain men" (Clover 1980: 445). In man-comparison flyting, the winner was "the better man" at boasting and insulting (Harris 1979). Many of the insults had been generated, or heard, prior to the engagement in which they were used — an important feature if men are to engage, and demonstrate their cognitive and linguistic skills, without getting hurt. Given that verbal rituals have persisted throughout recorded history, there is no reason to believe that they were not operative also at the very dawn of language.

Ritual insulting continues today in a wide range of cultures around the world (see references in Locke & Bogin 2006 and Locke 2009). In the typical case, two familiar males direct alternating remarks at each other competitively, before a spontaneously assembled audience. Success in these contests rests on humor, fluency, timing, and, since much of the best material is 'prepackaged', memory.

These 'verbal duels' are thought to discharge aggressive dispositions (Marsh 1978), and to provide a way to compete for status and mating opportunities without risking physical altercations (Locke 2008). Aspects of verbal duels resemble the vocal duels of some avian species which are also performed primarily or exclusively by males (Vallet & Kreutzer 1995, Leboucher & Pallot 2004, Rogers *et al*. 2006). There are additional similarities to the loud calls of orangutans and baboons (Fischer *et al*. 2004, Delgado 2006), which — as in the human and avian cases — are issued primarily or exclusively by males and carry information about competitive ability and physical stamina as well as rank (Seyfarth & Cheney 2003, Fischer *et al*. 2004, Kitchen *et al*. 2004).[1]

Linguists have observed that it is difficult to derive human syntax from primate calls and grunts (e.g., Newmeyer 2003), but it may be easier to detect continuity when viewing intermediate forms of language (see, e.g., Jackendoff 1999, 2002). To us, the theoretical significance of the aggressive vocal displays of male apes and the ritual insults of male humans is that the former may have intergraded into the latter at an early stage in linguistic evolution. This is more easily seen when one considers the format of a specific type of insult, one that reflects a combination of expressive and generative, or 'proto-syntactic', power — the exocentric compound.

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[1]   As pointed out by a reviewer, the vocal duels by other species are of course in many respects different from the insults that humans can generate by using and combining meaningful language units. Nonetheless, there is a clear similarity of purpose. Humans have evolved another strategy, vocal and verbal indices to fecundity, temperament, and certain cognitive abilities, thus to fitness.

3.   Compounding the Insult

In the transition from infancy to childhood, when syntax emerges, developments occur in three other areas that are relevant to our claim: (1) the ability to spontaneously generate compounds (Becker 1994), (2) the tendency to tease and insult (McGhee 1976, Apte 1985), and (3) the onset of agonistic verbal engagement or verbal dueling (Gossen 1976, Wyatt 1995, 1999). Both teasing and insulting, and verbal dueling, are predominately male behaviors, even at the time of their appearance in late infancy or early childhood. It is also relevant in this respect that syntactically simpler structures emerge before their more complex counterparts, and this is also true of compounds. There is evidence that verb–noun (VN) compounds that are exocentric, that is, not headed (section 4.1), are used for naming purposes long before children are able to create well-behaved (headed) compound types. In this respect, Clark *et al*. (1986) found that children initially produce compounds such as *grate-cheese*/*rip-paper* in lieu of *cheese-grater*/*paper-ripper*.

When it comes to insults, single words clearly suffice, but combining two words into a meaningful unit greatly expands expressive power. Consider exocentric VN compounds that are primarily used in derogatory references, e.g., English *dare-devil*, *kill-joy*, *pick-pocket*, *scatter-brain*, *turn-coat*; Serbian *cepi-dlaka* 'split-hair' (hair-splitter), *guli-koža* 'peel-skin' (who rips you off), *vrti-guz* 'spin-butt' (restless person, fidget).[2] (See the appendices for many more examples.) These compounds used to be productive and plentiful across languages, numbering in the thousands, but they are now reduced to a few survivors. While some of these compounds (less vulgar ones) have survived as common nouns, they all originated as appellations.

It is thought that naming was among the first uses of language for referential purposes, preceding the so-called epistemic stage, in which language is used to express propositions or statements.[3] It has also been speculated by, for example, Rolfe (1996) that humans initially used verbs to issue commands (cf. imperative), even in the one-word (pre-syntactic stage), and much before they used verbs to make statements.[4] It is thus intriguing that these compounds in

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[2]   A reviewer points out that a label such as *daredevil* is not necessarily derogatory, but that it may even invite admiration. As also discussed in fn. 5, there are general desiderata for VN compounds, and the large majority of them, although not every single one of them, conform to such desiderata, which include humorousness, playfulness, and derogatory nature. As for *daredevil*, while it may be perceived as a label for someone who is daring, it can also be perceived as a label for someone who is unrealistically daring. To put it another way, while daredevil-ish acts by themselves may attract positive attention and admiration, calling somebody a daredevil can constitute a warning that the display is pushing the limits of actual capabilities, and that the daredevil may not be around for a long time.

[3]   A reviewer wonders what the purpose of naming would have been without being able to create propositions. Naming could have been used for endearment/intimacy purposes (perhaps equivalent to grooming), for summoning, as it is still used today, as well as for insulting purposes, if our hypothesis in this paper is correct.

[4]   Some indirect support for this hypothesis comes from the observation that imperative forms tend to be the least marked verbal forms across languages, and/or that they tend to preserve archaic patterns (e.g., Kurylowicz 1964: 137, Dixon 1994: 189). In addition, imperative has been reported to be among the first productive verbal forms used by young children (see, e.g., Bar-Shalom & Snyder 1999).

Serbian, as well as in other languages, feature a verb form that coincides with the imperative (section 4.2). In addition, many of these compounds operate with a very basic vocabulary, consisting mainly of concrete nouns and verbs, frequently referring to body parts or functions, but the combinations are striking metaphors that can express abstract human traits succinctly, creatively, and humorously.[5] We suggest that at some point following the evolution of proto-language, combinations comparable to exocentric compounds were used for ritual insults, or for naming purposes more generally, and that those who used them successfully contributed to the underlying syntactic principle of Merge, which is necessary to create these compounds. Clearly, the ability to Merge in this case would have provided an enormous expressive advantage over just using single-word utterances for naming or insulting purposes, especially in this stage in which the vocabulary must have been very limited.[6]

It is important to keep in mind that we only claim that ritual insult in the form of compounding was *one* of the factors contributing to the consolidation of Merge; we are certainly not claiming that it was the only factor. As pointed out by a reviewer, the emergence of (proto-)Merge would have brought about a host of other communicative advantages. The reason why we are exploring ritual insult and sexual selection here is because the particular data we are considering, exocentric compounds, find the best explanation in these terms. These compounds, unlike any morpho-syntactic form we are aware of, specialize for derogatory reference.

4.   Exocentric Compounds and Proto-Syntax

Jackendoff (1999, 2002) proposed that the relatively flat (non-hierarchical) structure of adjuncts, as well as raw concatenation of compounds, still retain a bit of proto-linguistic flavor, and can be analyzed as syntactic 'fossils' of a previous stage of syntax (see also Bickerton 1990, 1998, for the notion of linguistic 'fossil').

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[5]   Not all acts of compounding are equally successful in achieving these general desiderata. As pointed out by a reviewer, compounds such as *pickpocket* do not sound particularly humorous. But enough of them exhibit these properties to suggest that these were the general desiderata. Those who have studied VN compounds in various languages were impressed by their artistic richness (see also section 4.3). According, for example, to Darmesteter (1934: 443), who studied Romance VN compounds, this kind of composition "may attain Homeric breadth; [… it] belongs to the popular language, to that of arts and crafts, and to poetry. Its richness is inexhaustible." As with any artistic enterprise, some creations are more impressive than others, and this is obvious even among the compounds that have survived. In fact, these varying degrees of success are exactly what is needed for sexual selection to have been able to operate.

[6]   A reviewer is worried that our claim may be characterized as a just-so-story. First of all, our proposal is based on solid and robust linguistic data, available cross-linguistically. At the very least, then, our proposal is a hypothesis about these data, which remain unaccounted otherwise. This is clearly also a proposal that connects linguistic theory to biological theory, in a most direct fashion. Moreover, at this point, there is little that has been proven about language evolution, and any attempts at this point are bound to be speculative to some extent. We believe that, under the circumstances, it is necessary to explore various tacks, and especially those that challenge the status quo in the field, and which promise to open new and original lines of discussion.

Progovac (2006, 2007) has argued that specifically VN exocentric compounds represent 'living fossils', that is, constructions dating back to a proto-syntactic stage, now co-existing with more complex syntactic constructions; according to Ridley (1993: 525), 'living fossils' are species that have changed little from their fossil ancestors in the distant past (e.g., lungfish).[7] While these compounds violate several rules and principles of modern syntax (see below), their structure, as well as their persistence, do provide some continuity with modern syntax. If so, then the syntax that supports their formation (proto-syntax) may have facilitated a transition from a pre-syntactic (one-word) stage to modern syntax.

4.1. Exocentricity and Proto-Merge

It is routinely reported in texts on morphology that verb-noun (VN) compounds introduced earlier (section 3; see also the appendices) are exceptional in that they are exocentric, in contrast to compounds such as *bedroom*, *navy-blue* (also *cheese-grater*), which seem to be headed by the second/rightmost element (e.g., Selkirk 1982, Spencer 1991). Thus, a *bedroom* is a kind of *room*, and *navy-blue* is a kind of *blue*, but *pickpocket* is neither a kind of *pocket* nor a kind of *pick*, but rather a person (who picks pockets/steals). Modern syntactic theory, including Minimalism (e.g., Chomsky 1995), considers that a syntactic combination of two elements (Merge) creates a phrase, the nature of which is determined by one of the merged elements acting as a head.[8] The headedness principle is central to syntactic theory, and is taken to apply to complex words as well, including compounds (e.g., Williams 1981).[9] It is obvious that Merge does not apply in the typical fashion in exocentric compounds, and our argument is that these compounds involve a proto-Merge, that is, Merge that does not create hierarchical structure, but rather just involves flat concatenation/adjunction, as will be further explicated in the following sub-sections. This is just one of many ways in which VN compounds are surprising.

4.2. Ancient Verb Forms

Due to the conservative morphology of certain languages (e.g., Serbian), it is

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[7]   Progovac also explores the fossil analysis with some semi-productive, marginal root small clauses in English and Serbian, such as *Me worry*?!, *Family first!*, *Problem solved* (see e.g., Progovac 2008, 2009, and other papers cited there).

[8]   A reviewer points out that it may be sufficient for Merge that the last element in exocentric compounds is a noun — that renders the whole compound a noun, which would then render this application of Merge unexceptional. This may indeed have been enough for proto-Merge, or whatever process it is which applies in exocentric compounds, but it is not enough for modern Merge. In productive compounds such as *toothbrush*, it is not just enough for the head of the compound to be a noun, but the syntactic head of the compound also has to be the semantic head, necessarily rendering *toothbrush* a kind of brush, and never a kind of tooth. Similarly, *drive-truck* is no longer a viable way in, for example, English or Serbian for expressing the notion of a truck-driver (even though it is in child speech; see section 3).

[9]   Many researchers have established the parallelisms between clause formation and formation of certain compounds, including the application of (equivalents of) Merge and Move. These include Roeper & Siegel (1978), Fabb (1984), Sproat (1985), and many others (see also Spencer 1991).

possible to tell that the form of the verb used in these compounds is an ancient unmarked form, the form which is best approximated in many present-day languages by the imperative (Progovac 2006, 2007). The imperative analysis of VN compounds has been explored by many traditional grammarians and researchers, not only for Serbian (e.g., Stevanović 1956, Mihajlović 1992), but also for English (e.g., Weekley 1916, Jespersen 1954) and Romance languages (e.g., Darmesteter 1934, Lloyd 1968). The imperative morphology in VN compounds highlights not only their exotic and ancient nature, but also points to their essentially clausal derivation.

Verb–Noun compounds are used productively in some Romance languages of today, including Spanish and Italian, although not as derogatory labels for people, but primarily as names for instruments or plants (cf. Spanish *lava-platos* 'wash-dishes, dishwasher', *para-caídas* 'stop-falls, parachute'). Lloyd (1968) claims that Romance VN compounds originated from nicknames, usually playful and humorous, and then spread to the other areas, around the 12th/13th century, possibly due to the lack of a competing pattern, such as English *-er* compound type (e.g., *dishwasher*). The latter use of VN compounds in Romance is not common in Latin texts, and is also marginal in Rumanian, where VN compounds "belong to affective and familiar language," and where they are "exclusively epithets applied to persons in a contemptuous fashion, as are the earliest examples in the other Romance languages" (Lloyd 1968: 7). According to Lloyd, many of the original VN compounds were coarse and humorous, and because of that did not enter the texts and reference books.[10]

4.3. Proto-Predication and Expressive Power

There is another reason to believe that verbal compounds resemble mini-clauses, and that Merge does not apply to them in the usual fashion. In addition to featuring the (imperative) verb, VN compounds also involve basic predication: The noun is interpreted as an argument of the verb, but whether it is an internal

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[10]   It may be that in these modern-day Romance languages, even though not all, VN compounds have re-emerged in a slightly more complex form than original VN compounds. First of all, unlike in English or Serbian, it is common to use plural nouns inside these compounds in Romance, as the Spanish data in the text illustrate (see e.g., Ferrari 2005). Second, Italian and French VN compounds also differ from their Serbian counterparts with respect to gender specification. Ferrari reports that Italian VN compounds are uniformly M(asculine), suggesting that they might have a null head with an M feature (for similar arguments for a null suffix in such compounds in French, see Rohrer 1977 and Lieber 1992). In Serbian, the gender of the VN compound is often not uniquely determined. For example, if the noun merging with the imperative verbal form is F(eminine) (e.g., in *ispi-čutura*, *čutura* is F), the demonstrative for the whole compound can be either F or M, even if a compound is used to refer to a male (see Progovac 2007 for details). Third, Spanish VN compounds are recursive (e.g., *limpia-para-brisas* 'wipe-stop-wind, windshield wiper'), unlike English or Serbian VN compounds, which are not recursive (English **scare-pick-pocket* 'one who scares pickpockets' or Serbian **muti-ispi-čutura* 'one who confuses drunkards'). All this points to the conclusion that the productive VN compounds in some Romance languages may be structurally more complex creations than the original ones, creations that better conform to the rules of modern morpho-syntax. The discussion in this paper focuses solely on the simpler and more ancient compound type, which is no longer productive, at least not in the languages under consideration here, English and Serbian.

argument (object) or external argument (subject) does not seem to be structurally determined. For example, a *killjoy* is somebody who kills joy, with the noun *joy* acting as the internal (object) argument of the verb. Most VN compounds are of this type. However, in a compound such as *crybaby* the noun is clearly an external argument (subject). Compounds like *crybaby* may give an impression of well-behaved, endocentric compounds, but their morphological make-up is identical to that of *killjoy* type compounds, including the imperative verb form in Serbian equivalents (Progovac 2007).

There is further evidence pointing to the conclusion that we are not dealing here with two distinct compound types, one endocentric (*crybaby*), and one exocentric (*killjoy*). The evidence comes from VN compounds which can be dually interpreted. For example, a *daredevil* is someone who dares a devil (internal/ object argument interpretation) and can also be a devil who dares (external/ subject argument interpretation). In other words, *devil* in *daredevil* can be interpreted as both the subject and the object of the verb, simultaneously, showing that predication/thematic structure is not as uniquely and precisely specified in VN compounds as it is with typical syntactic constructs which involve modern Merge (see Progovac 2007 for more discussion). Another example is the Serbian compound *pali-drvce* (lit. 'ignite-stick', i.e. matches), where *drvce* 'stick' is both what gets ignited and what ignites. This gives further credence to our claim that the syntax behind VN compounds is basic, non-hierarchical, and that it involves a more basic type of Merge.

One might be tempted to say here that the ambivalence in interpretation suggests more structure, rather than less, as pointed out by a reviewer. However, the assignment of theta roles in these compounds is a matter of vagueness, rather than ambiguity. It is usually taken that vagueness allows for two (or more) interpretations at the same time, while ambiguity allows for only one interpretation at a time (see, e.g., Kempson 1977). The vagueness analysis favors the lack of hierarchical structure in these compounds, in contrast to ambiguity, which would favor multiple hierarchical possibilities. Consider the following example, uncontroversially ambiguous:

(1)   The boy saw the teacher with the binoculars.

Either the boy used the binoculars to see the teacher, or the boy saw the teacher who had the binoculars. These two interpretations will receive completely distinct syntactic representations. Importantly, this sentence cannot be interpreted to mean both that the boy used the binoculars to see the teacher and that the teacher had the binoculars, although this dual interpretation is pragmatically plausible. When it comes to VN compounds, the possibility of dual interpretation points in the direction of vagueness, which, unlike ambiguity, is not tied to distinct syntactic structures. In fact, as pointed out above, what suffices in the case of VN compounds is the analysis which posits proto-predication, where the verb merges with one argument, and where there is no further structure to specify the nature of that argument. The rest is accomplished by pragmatics. In other words, there is no evidence for any differentiation in these compounds between external and internal arguments, the behavior which

resembles absolute arguments in ergative/absolute languages. In an ergative language, the subject of an intransitive verb is morpho-syntactically equivalent to the object in a transitive construction (see, e.g., Dixon 1994).

A reviewer points out that this possibility for dual interpretation with compounds such as *daredevil* is an exception, rather than a rule, among VN compounds. As discussed above, these compounds *in principle* can be interpreted as either involving an internal argument, or the external argument, as far as their (proto-)syntax goes. The choice is largely due to pragmatics, and, if they are especially witty, such compounds can even be assigned both interpretations at the same time. Take the compound *rattlesnake* as an example which does not allow dual interpretation. In the absence of an accessible concept of a person/animal/instrument that rattles snakes, the only plausible interpretation here is that of a snake who rattles (external argument). For this compound to be interpreted dually, it would take there being snakes that rattle, and that are at the same time rattlers of other snakes, a highly unlikely pragmatic scenario. Thus, for the vast majority of VN compounds it is true that they are interpreted as taking either an internal argument (typical scenario), or an external argument. However, those few that pragmatically allow both interpretations simultaneously show that their (proto-)syntax does not stand in the way of such dual interpretations, the way present-day syntax does (see the example in (1) above). Importantly, the syntactically more complex compound *snake-rattler* cannot be dually interpreted, or interpreted to mean a *rattlesnake*, regardless of the pragmatics, because the syntax here specifies that *snake* is necessarily the internal (object) argument. As pointed out by a reviewer, minimal syntactic specification, and extensive involvement of pragmatics, are the hallmarks of what have been proposed to be syntactic fossils by, for example, Jackendoff (1999, 2002).

It is in fact those compounds that can be doubly interpreted in this way (e.g., *daredevil*) that seem to be most expressive, their expressiveness unmatched by any syntactically well-behaved paraphrase (e.g., *daring person*). By introducing more precision, a more complex syntax precludes exactly this type of double interpretation. This great and unique expressive power of VN compounds may be part of the reason why some of them have been preserved to this date. According to Darmesteter (1934: 443), the artistic beauty and richness of these compounds in French is inexhaustible. Mihajlović (1992), who collected over 500 Serbian place and people names in the form of VN compounds, reports that these condensed compositions pack in them not only sentences, but also frozen fairy tales, proverbs, and ancient wisdoms and metaphors (1992: 8–9). Like Darmesteter, Mihajlović also concludes that their wealth and depth are unfathomable. It is worth observing that even academics of the 20th century found beauty in these compounds, and reacted to them with admiration. Under the assumption that our hypothesis is correct, one can expect that at least as much admiration would have been engendered by comparable creations at a stage when language was just emerging.

4.4. *Availability across (Unrelated) Languages*

Exocentric compounds are found across not only Indo-European languages, but

also non-Indo-European languages, with intriguing parallels in their morphological and semantic make-up. In Tashelhit Berber, a language belonging to the Afro-Asiatic language family, which is spoken in Southern Morocco, *ssum-sitan* 'suck-cow' (insect) is closely parallel to Old English *burst-cow*, which also meant 'insect'. In addition, the drinking image for a miser *drynk-pany* is reminiscent of *ssum-izi* (suck-fly) in Berber (see Progovac 2006, 2007, for discussion and for additional examples and parallels).

It seems that this type of compounding appears in this VN order even in head-final languages, such as German (*Tauge-nichts*, *lit.* 'be.worth-nothing' = 'good-for-nothing', *Habe-nichts* 'have-nothing', comparable to English *dreadnought* and *know-nothing*).[11] It is not clear, however, if any correlation is expected between the ordering in exocentric compounds and the current word order in any particular language, for two reasons. First, according to Kayne's (1994) approach to cross-linguistic variation in word order, all languages are underlyingly verb initial, and any surface deviations from this ordering would be derived by various movement operations. If VN compounds involve no movement, as we assume (see Progovac 2007), then, at least for those that involve an internal argument, it is to be expected that even head final languages would have VN ordering in these compounds.

Second, and regardless of whether or not one subscribes to Kayne's (not uncontroversial) approach, we argue that the VN compounds found in present-day languages are fossils of some ancient stage of language, whose word order is thus not expected to be identical to that of any present-day languages.[12] Needless to say, in-depth analyses of these exocentric compounds in additional languages, preferably by their native speakers (given that these compounds are hard or impossible to find in official reference books) would shed further important light on the ideas presented in this paper, and we hope that our paper will stimulate such research.

5.   Fitness Value

As we have seen, verbal dueling appears in a wide variety of places and cultures, begins early in development, and has occurred for the duration of social history, from flyting in the 8th century to 'sounding' (or 'the dozens') and other forms of verbal duels in modernity (Harris 1979, Parks 1990). Elsewhere we have argued that the strong male bias associated with verbal dueling, and attested increases in agonistic verbalization in juvenility and adolescence — taken with other facts — imply a causal role for testosterone (Locke & Bogin 2006). Since testosterone can get young men injured or killed, we suggest here that humorous appellations, in

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[11]   Thanks to Andreas Kyriacou (p.c.) for the German data.

[12]   In this respect, Miller **(**1975: 32) notes that in Proto-Indo-European the productive compound type was SV, OV, but that VS, VO was archaic and residual. To him, the residual com-pound type suggests that Proto-Indo-European was a VSO language that shifted to SOV and was in the process of shifting to SVO at the time of our earliest documentation (p. 33; see also Vennemann 1974). According to Miller, the oldest re-constructible stage of Proto-Indo-European may have been VSO (33). Proto-Indo-European also had a marked conjunct order, with the verb at the beginning (Watkins 1963), which is a residue of VS order.

the form of exocentric compounds, were an adaptive way to compete for status and sex. This would have enhanced relative status first by derogating existing rivals and placing prospective rivals on notice; and second by demonstrating verbal skills and quick wittedness, attributes that would have been valued both by men and by women. Darwin (1874) identified two distinct kinds of sexual selection: aggressive rivalry and mate choice (see also Miller 2000a, 2000b), both of which seem relevant for exocentric compounds. Since these compounds were used to (re-)name their victims — an act that in other contexts is preferentially performed by men (Hopper *et al*. 1981) — they would have carried more weight than temporary insults. The challenge therefore would have been to create names that captured the essence of the person in just two simple (concrete) words, a verb and a noun, a feat that clearly requires intelligence, creativity, and originality.

Historical records indicate that the playful and humorous use of vulgarity, in public contests, is a practice in which men clearly dominate (see Abrahams 1962, 1973, 1989, Apte 1985, Garrioch 1987, Pujolar i Cos 1997, and Gallant 2000). Supporting these general tendencies is a particular pattern in the use of insulting compounds — many are vulgar, and the vast majority target males, for example, *Poj-kurić* 'sing-dick' (womanizer; preserved as a name); *jebi-vetar* ('fuck-wind' charlatan, purposeless man). Even those that seem to refer to females, and could, in principle describe females (*Laj-kučka* 'bark-bitch', loud and obnoxious person; *plači-pička* 'cry-cunt', vulgar version of *crybaby*) are in fact typically used in reference to males, for a doubly insulting effect (Mihajlović 1992).[13]

The use of cursing and 'dirty words' is more common in males (Jay 1980, 1995, van Lancker & Cummings 1990). In a study by Code (1982), all the expletive lexical speech automatisms, whether negative (hatred, racism) or positive (humor, sex), were produced by men. Swear words frequently express emotions such as fear, pain, frustration, and may accompany sexual and violent activities. According to Darwin (1872), strong emotions expressed in animals are those of lust and hostility, and they may have been the first verbal threats and intimidations uttered by humans (Code 2005: 322). These considerations are all consistent with our proposal that VN compounds can be seen as 'living fossils' of ancient language forms, loaded with expressive and emotional power, which might have been used predominantly by males for display purposes.[14]

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[13]   A reviewer wonders about the generality of the use of vulgarity in VN compounds, given that Serbian compounds seem much coarser than the English ones (see also the two appendices). First, as the reviewer himself points out, there are a few quite coarse compounds in use in English as well: *fuckwit, shithead, piss-poor, piss-artist*. Of note is also that the same basic verbs denoting bodily functions (*fuck, shit, piss*) are used in both English and Serbian (Appendix A). Second, sources dedicated to English and Romance VN compounds mention their "unquotable coarseness" (Weekley 1916), which led to their exclusion from dictionaries and grammar books, and to their virtual extinction (see also Lloyd 1968 and Darmesteter 1934). Coarse VN compounds are also routinely banned from Serbian reference books. Mihajlović (1992), from which most coarse compounds are taken, is a lonely exception. This reference is specifically devoted to VN compounds, and is a result of a thirty-year field effort which involved covering village by village, and consulting records of names in each. The pattern of vulgarity, thus, seems to be general, even if places where fossils of this pattern are preserved may be random.

[14]   Our claim that sexual selection played a role in the emergence of exocentric compounds, and

If syntax evolved gradually, as has been proposed (e.g., Pinker & Bloom 1990, Jackendoff 1999, 2002, Progovac 2008, 2009), there may be some evidence of interspecific continuity. We note attested associations between innovation and intelligence throughout the primate world (Ramsey *et al.* 2007), and evidence of vocal innovation in chimpanzees (Hopkins *et al.* 2007).[15] There also are associations, in our own species, between various lexical measures (e.g., vocabulary size, metalinguistic skills) and general intelligence (Locke 2008). Taken together, these facts suggest that the ability to create and use insulting and humorous compounds in a competitive way may have improved status and mating opportunities in our evolutionary ancestors. If so, it is possible that creations comparable to exocentric compounds helped facilitate the transition from proto-language to syntax.

6.   Conclusion

Not only do exocentric VN compounds suggest an ancient syntactic/combinatorial strategy, but their semantics and use also provide potential evidence of ritual insult and sexual selection at work, selecting for this basic/proto-syntax. The following special and unique properties of these compounds, difficult or impossible to explain otherwise, support the sexual selection proposal.

First, these VN compounds specialize for derogatory reference, often vulgar, providing evidence of aggression. Second, there is evidence in these compounds that males are targeted for insults, rather than females. Third, VN compounds are striking, expressive, novel metaphors, which use the most basic vocabulary (including body parts and functions) to express quite abstract human traits. Fourth, VN compounds provide evidence of imagination, quick-wittedness, and (crude) humor. Finally, the vast number of these compounds (reported to have been in the thousands!) clearly exceeds what is needed for survival or just communication; such excess is typically ascribed to sexual selection forces. As put in Miller (2000a: 369), "if language evolved in part through sexual choice as an ornament or indicator, it should be costly, excessive, luxuriant beyond the demands."

If the ability to merge two words to create a more stunning (ritual) insult was beneficial for sexual selection, then it is possible that the very foundation of syntax, the principle of (proto-)Merge, was reinforced by sexual selection.

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of syntax, is also consistent with findings that reveal sex differences in two cognitive systems that are recruited by language — declarative memory and procedural memory (Pinker & Ullman 2002, Ullman 2008). This issue will have to await further research, however.

[15]   According to Miller (2000a: 411) neophilia, an attraction to novelty, runs deep in animal brains.

Appendix A: Some (mostly coarse) Serbian VN compounds as people and place names (taken from Mihajlović 1992)

Čepi-guz	'cork-butt'
Češi-guz	'scratch-butt'
Ćuli-brk	'stick.out-moustache'
Deri-gaća	'rip/tear-underpants'
Deri-kučka	'rip-bitch'
Deri-muda	'rip-balls' (place name, a steep hill)
Draži-vaška	'tease-louse'
Gladi-kur	'smooth-V-dick' (womanizer)
Gori-guzica	'burn-butt' (a person in trouble; cf. English *Burn-breeches*)
Jebi-baba	'fuck-old woman' (unselective womanizer)
Jebi-sestra	'fuck-sister/cousin'
Jebi-vetar	'fuck-wind' (charlatan, good-for-nothing)
Kapi-kur	'drip-dick' (name of a slow spring)
Kosi-noga	'skew-leg' (lame person)
Kovrlji-guz	'drag-butt'
Kradi-gaća	'steal-underpants'
Krpi-tur	'patch-butt' (poor person)
Laj-kučka	'bark-bitch' (loud and obnoxious person)
Lezi-baba	'lie-old-woman' (loose woman or man)
Lezi-tetka	'lie-aunt' (loose woman or man)
Liz-guz	'lick-butt'
Muz-govno	'milk-shit'
Nabi-guz	'shove-butt'
Neper-gaća	'no-wash-underpants'
Peči-govno	'burn-shit'
Piš-kur	'piss-dick'
Plači-guz	'cry-butt' (cf. *crybaby*)
Plači-pička	'cry-cunt' (vulgar version of *crybaby*)
Plaši-vranac	'scare-crow'
Poj-kurić	'sing-dick' (womanizer)
Prdi-kučka	'fart-bitch'
Prdi-vuk	'fart-wolf'
Prdi-zec	'fart-rabbit'
Prti-mud	'carry-balls'
Puš-kur	'smoke-dick'
Razbi-dupe	'break-butt' (steep terrain)
Seri-sabljić	'shit-sword' (cf. English slang *shit-bullets*)
Seri-vuk	'shit-wolf'
Visi-guz	'hang-butt'
Vuci-guz	'drag-butt' (slow-moving person)
Vuci-klašnja	'drag-stockings' (carelessly dressed person)
Vuci-kuja	'drag-dog' (stray dog)

Appendix B: Some additional English VN compounds

As names in English (most are taken from Weekley 1916):

Bake-well ('well' as 'stream/pool'; a well-known advocate for cremation), Ben-bow (bend-bow), Bere-water (bear-water), Bran-foot (possibly from brand-foot, for animals/slaves), Break-speare, Burn-house, Catch-love (love = wolf), Cant-well, Crake-bone, Cut-bush, Cut-fox, Cut-love (love =wolf), Cut-right, Culle-hare (culle = kill), Culle-hog (culle = kill), Culle-bolloc (culle = kill), Do-best, Do-bet, Do-little, Do-well, Doubt-fire (from arch. 'dout' – in charge of furnace), Dread-nought, Drink-low, Drynk-pany (drink penny), Drink-water, Eat-well, Gather-all, Gather-cole (coal or cabbage), Gather-good (good = property, wealth), Go-lightly, Hab-good (from 'hap' = 'to snatch'), Hack-block, Hack-wood, Hate-crist (crist = Christ), Hop(e)-well (well = stream/pool), Hurl-bat, Kill-buck (Place name in the state of New York), Kis-sack, Lack-land, Lack-love, Love-gold, Love-good (probably good = God; contrast with Hate-crist), Love-well, Make-joy, Make-mead, Make-peace, Mar-brow, Mar-wood, Mean-well, Mend-market, Pass-field, Passe-low (cross-water), Perce-forest (perce = pierce), Perce-val (pierce-vale), Pers-house (pers = pierce), Pil-beam (pil = peel, barker of trees), Pinch-back, Porte-rose, Rack-straw (rack = rake), Rid-land (rid = clear), Rid-wood (rid = clear), Save-all, Scare-devil, Scatter-good (good = wealth/property), Shake-lady, Shake-lance, Shake-rose, Shak-shaft, Shake-speare, Shake-staff, Shear-gold (coin-clipper), Shear-lock, Shear-wood, Shave-tail (shave = shove), Spare-good (good = property, wealth), Spare-water, Spin-garn, Spyll-payn, Stab-back, Stand-even, Stand-fast, Strangle-man, Swep-stak, Thack-well (thatcher), Thumb-wood (cf. *mar-wood*; 'thumb' archaic for 'to handle clumsily'), Tickle-penny, Tire-buck (tire = tear), Tread-away, Tread-gold, Tread-well (well = stream), Trede-water, Trust-god, Tuck-well, Turn-bull, Turn-penny, Turn-pike, Wage-spere, Wag-horn, Wag-staff, Wag-tail, Wast-all, Win-bow, Win-penny, Win-rose, Wipe-tail, Wrynge-tail.

As common nouns, probably deriving from names/nicknames:
(based on references such as Weekley 1916, Jespersen 1954, Lees 1960, Marchand 1969)

bang-straw (thresher), break-back, break-covert, break-fast, break-neck, break-vow, break-water, burn-bag, burst-cow (insect), carry-all, carry-tale, catch-fly (plant), catch-penny, cease-fire, cover-shame (plant), cover-slut (apron), cure-all, cut-finger (plant), cut-throat, cut-purse, cut-water, do-nothing, do-nought, dread-nought (originally a person; later a battleship), end-all, fill-belly (glutton), fill-pot, find-fault, hang-dog (originally a person who hangs stray dogs), hang-man, heal-all (plant), hunch-back, kill-devil, kill-joy, kill-lamb (plant), kill-time, know-little, know-nothing, lack-brain, lack-bread, lack-grace, lack-land, lack-love, lack-luster, lack-mind, lack-sense, lack-wit, let-game, lick-box, lick-dish, lick-ladle, lick-platter, lick-pot, lick-spit, lick-spittle, lock-jaw, make-mirth, make-peace, make-rime, make-weight, pass-port, pas-time, pick-lock, pick-purse, pick-thank, pinch-back (miser), pinch-belly, pinch-gut, pinch-penny, prick-bill, rake-hell (scoundrel, ruffian), rake-shame, save-all, saw-bones, scare-crow, scatter-brain, scoff-law, scrape-gut (fiddler), shear-water (bird), shuffle-wing (bird), skin-flint, sling-shot, spend-thrift (miser), spill-bread, spill-time, spit-fire, spoil-sport, spurn-water, stay-ship (fish), stay-stomach 'snack', stop-gap, sweep-stake, swish-tail (bird), tangle-foot (whiskey), tear-thumb, tell-tale, tell-truth, toss-pot, tumble-dung (insect), turn-broach, turn-coat, turn-key, turn-penny, turn-skin, turn-spit, turn-stone (bird), turn-table, wag-tail (bird), want-wit.

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