

Compositionality, the Prose Default and Poetry: A Cognitive Approach

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ABSTRACT

Generative linguistics has been operating with an unexamined default: generically unspecified prose is taken to constitute the unmarked mode of linguistic composition from which marked, literary genres depart. This contrasts with what Jakobson's structuralist account took to be the conceptual default. His account argued for poetic patterns (some of them salient, some attenuated) pervading all discourses; it needs to be superseded by an explicit generative anchoring of compositionality in fundamental properties of language. To make formalistic assumptions – a lexico-grammatically driven sound-meaning pairing plus pragmatic and stylistic supplements – misses the point that every spoken or written passage is minimally a composition under specifiable generic conventions. This paper, extending the substantivist conceptual framework in generative grammar, proposes a "Juxtapose Alpha" operation with consequences for how the syntagmatic and paradigmatic axes align as sequences of strings are woven into texts differently for different genres. Certain testable consequences follow and are of cognitive interest.

1. INTRODUCTION

The contextualization of language within human cognition calls for clarification of the interfaces where language meets other cognitive systems. Mukherji (2000) sheds some light on the linguistics-musicology interface. Dasgupta (2003b) notes one crucial conceptual difficulty with his enterprise in its present form. Music is an art; language is taken to be an ordinary human phenomenon that happens to provide the material basis for literature. Linguists base their formalizations on this received wisdom.

One way to take Mukherji's project further might be to sharpen our formal understanding of literature, which then feeds a research agenda

at the literature-music interface. A second approach is to inquire if we are working with the right idealization in our linguistics. Such inquiry involves rethinking our coordinates and rigorously deepening the basis of linguistics to the point where formal predictions about literature follow from that deeper characterization of language. In this article I take the second approach. Specifically, I make some moves towards a reconsideration of compositionality.

The paper is organized as follows. Section 2 suggests that the existing take on compositionality, based on a lexico-grammatically driven sound-meaning pairing with a pragmatics that cleans up afterwards, is excessively preliminary; that it misses the point that every spoken or written passage is, as a composition, subject to generic conventions whose formal properties must be part of the characterization of that passage. Section 3 revisits Jakobson's classic work on these issues and inquires how best to update it in a generative context. Section 4 proposes one way to perform some of this updating. Section 5 returns to the discussion of compositionality and looks at some consequences for cognitive inquiry.

2. COMPOSITIONALITY

Cutting across major disagreements over every domain of linguistic analysis, certain default assumptions regarding compositionality underpin current descriptions of sentences and their phrasal constituents. The summary of these assumptions provided at (1) below may serve as a point of departure. These views represent the received wisdom underlying most linguistic, psychological and philosophical work on language now current.

(1) STC, for Standard Theses on Compositionality

A sentence is a body of sound and meaning whose pairing is mediated by grammar plus lexicon. The structure and interpretation of each sentence are built stepwise; multi-word constructions merge with each other until the sentence is ready. The interpretation of idiomatic constructions like *kick the bucket* "die" takes a special route and requires lexical registration. Every non-idiomatic construction is a free expression. Its meaning is jointly determined by the individual senses of its constituents filtered through the function associated with the construction assembling the parts into this particular whole. This joint determination principle is termed compositionality. Such determination of composite meanings exhausts the lexico-grammatical contribution to

the interpretation of sentences and their constituents. Other aspects of their interpretation reflect such extra-grammatical factors as pragmatics. The lexico-grammatical account of constructions extends only up to the sentence level. Levels of organization involving more than one sentence must invoke additional principles.

To be sure, no author has ever claimed a perfect fit between STC and primary data; on the contrary, mismatches between (1) and real life are well known. Instances of false starts, anacoluthon and other consequences of the imperfect implementation of plans, or of multiple planning wires getting crossed, are thick on the ground. These everyday traffic jams motivated the distinction between performance and competence (Chomsky 1965).

From Chomsky 1965 onwards, certain authors drawing on the resources of generative grammar have sometimes also touched upon the use of language in creative writing and have suggested that such use exemplifies various types of deviation from lexico-grammatical norms. They assume that there is nothing systematic for general linguistics to say about those genres of language use. Deviations in the service of art are to be understood aesthetically, at some distance from a formal account of the ordinary, non-artistic structure of language (for one articulation of how such an aesthetic account may selectively draw upon a formal characterization of ordinary linguistic structure, see Fabb 2009). In other words, core linguistics studies ordinary language as observed in its moderately careful uses. A hasty person's careless speech or writing and a literary artist's deviously careful writing are both to be set aside in core linguistics. The sloppily careless and the craftily careful depart from the ordinary in opposite ways; they both count as inappropriate input for the systematic study of normal knowledge of language.

This received view, though coherent, misses a fundamental point about the characterization it implies of the moderately careful production and comprehension that this approach accepts as the appropriate object of linguistic study. A person whose language use is neither sloppy (notably artless) nor creative (notably artful) needs to be viewed as a moderately successful pedestrian practitioner of the *art* of verbal composition. Thus, the lexico-grammatical approach to language left to its own devices is inadequate, if the task is indeed to characterize language at the level at which compositionality operates. Contrary to what (1) suggests, the lexico-grammatical apparatus alone, even with some help from pragmatics, cannot adequately characterize verbal composition, for such composition is minimally artistic and this fact affects the construction of meaning.

When one produces a (spoken or written) sentence, one is doing more; one is composing a minimal but genre-specified passage of prose or poetry. A description of verbal composition that confines itself to a naturalistic prose default and to this end elides generic conventions or leaves them implicit is non-explanatory. By implying such a default, it begs major questions. To require some supplementary account to bear the burden would be disingenuous, as no known characterization of performance or pragmatics can reinvent the literary wheel. The fact that language is an art in some pretheoretical sense awaiting rigorous elaboration needs to be faced. Thus, we need an account of verbal composition that does not disengage the lexico-grammatical apparatus from the rest of the architecture. STC as formulated at (1) cannot underwrite such an account.

If linguistic theory has to expand to meet this challenge, just where is the “literary element” of “ordinary” verbal composition to be niched? To rock the boat too violently would mean losing decades’ worth of work. But we also cannot afford to house new proposals in an optional “literary genres” module of human knowledge of language, thus formalizing the naive belief that certain “non-literary” verbal compositions are not generically specified at all. The strategy I follow in this paper involves introducing a core device into the lexico-grammar in a way that enables our new moves to preserve continuity with earlier work.

In particular, I propose – generalizing from the Look Across operation of Dasgupta (2003a) – that the lexico-grammar employs a juxtaposition operation. The basic functions of this formal operation *Juxtapose Alpha*, which works at the same level of generality as *Affect Alpha*, are described briefly in Section 2 and at greater length in the Appendix. *Juxtapose Alpha* has the effect of highlighting a linguistic item and inviting comparison with similar items in the passage. The linguistic formulation we provide allows for some latitude of interpretation in terms of pragmatics and other theories that contextualize language in cognition or action; I return to broader cognitive science issues in Section 5. The Juxtapose operation is designed to address the issue of “parallel constructions” in the sense of Chomsky’s (1972) remarks, to which I return in Section 2.

The relevance to poetry is obvious. But how can such a move serve to bring out the latent minimal artistry in all language use? My answer is to have Juxtapose apply at the moment of enunciation to the (prototypically sentential) product of grammar that a speaker or writer enounces; “utterance” is the term for enunciation preferred in a speech-focused mode of description; in poetry, the descriptive problem one will

have to solve as one elaborates such a framework is that of aligning acts of enouncing with verse structure.

The decision to apply Juxtapose at this interface follows the tenets of substantivism (Dasgupta, Ford & Singh 2000; Dasgupta 2010) as distinct from formalism. But, given the existence of focal stress, and syntactic effects as in *John does love Mary*, formalists too must use Juxtapose or some equivalent. For instance, derivationalists committed to sideward movement (to which I return in Section 5) may consider making Juxtapose an add-on to Spellout or to specified applications of Merge, guided by principles of economy. This point does not concern formalists alone; substantivist work also recognizes applications of the routine that target units smaller than the entire enunciation (Dasgupta 2003c).

Going beyond generalities, Juxtapose serves both to anchor certain pattern properties of language use in fundamental features of language design (see Section 4 for discussion) and to articulate generic distinctions. The observations that guide us in this domain begin at versified poetry: verses are known to depend for their effects on a meshing of salient patterns that co-deploys recurrence with other properties. Equally crucially, different genres of prose configure salient patterns differently to produce convention-governed logical contours in the service of generic effectiveness. This subdomain is less clearly understood; Ducrot (1984) locates the fundamental problem at embedding itself; his suggestive descriptions at the pragmatics-grammar interface flesh out the idea that even embedded finite clauses count as enunciations. Following his lead, I propose that every finite clause is an enunciation and triggers a distinct application of Juxtapose.

Assuming that this PF/LF articulation of the task expresses the natural cuts, I propose module-anchored applications of Juxtapose. Versification involves prosodically intermeshed applications anchored in the PF (Phonetic Form) module, while LF (Logical Form) anchored applications address the dynamics of prose. The point that rhyme is not just a matter of phonology – but of phonological framing that highlights also the lexical semantics of rhyming words – does not make it inappropriate to postulate PF anchoring for applications of Juxtapose responsible for the specificity of verse. PF representations do not draw on phonetics alone, but access other grammatical features as well.

How does all this bear on showing (1) to be inadequate, though? Whenever one composes a sentence or a longer passage, it is generically specified. Such specifications have to do with the pattern of applications of the Juxtaposition operation available for a particular genre. Thus, a given sentence (which STC would have us construe only

in terms of a sound-meaning pairing mediated by the lexico-grammar) must in fact also be seen as constituting, or as being part of, a generically specified passage that deploys juxtapositions and thus situates several overt subpassages relative to other overt or covert subpassages on the paradigmatic axis, thereby pointing the meanings in certain directions and not others relative to the body of presuppositions that a passage – or even a minimal passage, called a sentence – negotiates with. This is the level at which (1) fails as a characterization of the factors determining interpretation and at which Juxtapose helps us to do better.

The idea that semantic interpretation in generative grammar must incorporate machinery oriented to parallelism is quite old. A first draft of this approach to linguistic structure in the context of generative grammar is implicit in Chomsky's (1972: 90ff) account of focus and presupposition, read in the light of his observation about "parallel constructions" (1972: 99) and his comment that a linguistics of competence that moves away from its Saussurean roots must "drop the loose and metaphoric use of such notions as 'choice'" (1972: 116) and must therefore abandon the naively successivist image of the spoken chain. As we turn those remarks of Chomsky's into a serious modification of the generative research programme, it pays to actually go back to the structuralist image of language, take stock of what was then understood about "parallel constructions" and the paradigmatic axis, and do our updating with some clarity about just what is being replaced and why. This is the agenda of Section 3.

3. REVISITING JAKOBSON

The importance of the artistic dimension of language was pointed up quite early by Edward Sapir; he described language (1921: 231) as "the collective art of expression"; in his framework this was neither a mere figure of speech nor a statement about a dispensable aspect of some uses of language. But the most influential formulations by structural linguists in this domain come from the Prague School. We can usefully focus on an often cited one-line summary of these formulations – Jakobson's proposal (1960/1972: 95) that "*The poetic function projects the principle of equivalence from the axis of selection into the axis of combination.* [Italicized by Jakobson.] Equivalence is promoted to the constitutive device of the sequence."

Jakobson explicates this "equivalence" in terms of phonetic-semantic similarity and dissimilarity: "Briefly, equivalence in sound, projected into the sequence as its constitutive principle, inevitably

involves semantic equivalence, and on any linguistic level any constituent of such a sequence prompts one of the two correlative experiences which Hopkins neatly defines as “comparison for likeness’ sake” and “comparison for unlikeness’ sake” (1960: 109). The import of these ideas becomes obvious in studies implementing his model, which need not detain us here; for one iconic implementation that examines a poem by Baudelaire, see Jakobson and Lévi-Strauss (1972).

What is more pertinent to projects we can meaningfully take up in a cognitive science context today is Jakobson’s claim that the “poetic” function of language in his sense of the term is not confined to poetry, but bears on all uses of language. He claims that there is no style-free referential use of language, just as there can be no reference-free purely poetic use. Even in banal prose passages, where the role of paradigmatic equivalences projected onto the syntagmatic axis is hardly obvious, Jakobson detects minimal devices. Their very minimalness makes them less amenable to parallelism-focused description. But Jakobson’s take is that nonetheless it is precisely devices of this general sort, however subtle or attenuated, that count as the stylistically relevant properties of every stretch of speaking or writing.

Thus, Jakobson speaks of “literary forms” [in which] verbal devices are unostentatious and language seems a nearly transparent garment. But one must say with Charles Sanders Peirce: “This clothing never can be completely stripped off, it is only changed for something more diaphanous” (Peirce 1931: 171). “Verseless composition,” as Hopkins calls the prosaic variety of verbal art – where parallelisms are not so strictly marked and strictly regular as “continuous parallelism” and where there is no dominant figure of sound – present more entangled problems for poetics” (1960/1972: 116). Jakobson sees his account of parallelism as offering a valid structural analysis of the pervasive presence of stylistic devices – of which hard-core poetic devices are the clearest embodiments and are thus easiest to detect – throughout all uses of language.

At first blush, it might look puzzling that his analysis sees poetic devices as the prototypical mode of stylization, most obviously present in poetry but pervasive throughout all speech and writing. If one is to postulate any default mode of language use at all, naturalistic prose is surely the candidate that linguists have always agreed upon. Even Jakobson never made the perverse claim that versified poetry was the default mode of language use. Why then did his intuitions as a grammarian lead him to view the use of poetic devices as prototypical at the level of the structure of language?

When we look at the question more carefully, this apparent contradiction leads us to question our initial belief that the observational default status of naturalistic prose somehow revealed the nature of language – as if language were somehow coextensive with daily communication, as if it wore its nature on its sleeve. The following facts lead us to conjecture that poetry is central to language, not an optional ornament. First of all, poetry is a universal found in all speech communities. Secondly, child rearing practices everywhere include the use of nursery rhymes, lullabies and other versified material; the fact that children take to them naturally suggests that poetry feeds language acquisition. Thirdly, had humans not been specially designed to find it easy to perceive and digest verses, we should find them as difficult as jumping through arbitrary hoops, but we find them easy, which is explained if poetry is built into the language faculty. Fourthly, the earliest major authors in most literatures composed in verse; prose writing developed only afterwards and on the formal basis of that poetic corpus.

For these reasons, we need to retain Jakobson's sense of the key role that poetry plays in language somewhere in our account even as we update our perspective. At the same time, surely naturalistic prose is indeed the default genre if there is one, and surely Chomsky is right to recommend dropping "the loose and metaphoric use of such notions as 'choice'" (1972: 116) that underlies Jakobson's entire architecture, and therefore to update our conceptualization of the syntagmatic and paradigmatic axes. How to do we go about balancing these considerations as we reexamine his work?

Jakobson's point about the irreducibility of stylized generic conventions stands; a genre-free composition would be a contradiction in terms. Linguists working with an idealization that claims to set generic conventions aside tacitly restrict themselves to default genre data; and "verseless composition" is indeed the default genre. But Jakobson's portrayal of this default overplays the poetry card by implying that surface features of versification are detectable all over language at various degrees of attenuation; this claim holds only because he underspecifies those features.

The crucial difficulty with his work becomes apparent in his remarks about "intentional discrepancy between the metrical and syntactic division" (Jakobson 1960: 107) in the case of "a heavy enjambment which puts a verse boundary before the concluding monosyllable of a phrase, of a sentence, of an utterance" (1960: 106). His remarks focus on sophisticated deviations from the norm of canonical versification; but he leaves it up to the intelligent reader to

supply an account of the norm itself – a job that the structuralist apparatus even at its best was never suitable for, because it was excessively wedded to the metaphor of “choice.”

Jakobson’s poetics worked around such key words as “*from the axis of selection into the axis of combination*” – referring to Saussurean choice. This confirms Chomsky’s (1972: 115) diagnosis of structuralism as a paradigm committed to the model of successive linear choices from finite sets. This fundamental commitment lets Jakobson down even when he works hard to attain descriptive adequacy. He writes, for example: “The superinducing of an equivalence principle upon the word sequence or, in other terms, the *mounting* [italicization Jakobson’s] of the metrical form upon the usual speech form, necessarily gives the experience of a double, ambiguous shape to anyone who is familiar with the given language and with verse. Both the convergences and the divergences between the two forms, both the warranted and the frustrated expectations, supply this experience” (Jakobson 1960: 106). Here Jakobson is trying to portray accurately such effects as ‘warranted and frustrated expectations’ in the reader’s “experience.” But a linguistics of effects obstructs the formulation of principles that would distinguish observed effects from possible but non-occurring effects. His tools can only describe what it sounds like to his (superbly perceptive) ear, not what is going on.

Let us then move the problem from his period to ours.

4. UPDATING JAKOBSON: A GENERATIVE APPROACH

Earlier, when I proposed Juxtapose, I was commenting on conditions that a generative analysis of the genre-specified nature of verbal composition must meet. At that point I made no attempt to engage with empirical material, or even to indicate what types of description and explanation are at stake. To seriously update Jakobson means moving his perceptive engagement with the data into methods of analysis consistent with generative grammar in particular and cognitive inquiry in general. The point is to attain higher degrees of descriptive and explanatory adequacy rather than just old wine in new bottles. To this end, we must engage with certain fundamental properties of language, showing how they underpin verbal compositions in specific genres.

The novelty of free expressions is a property of direct relevance. It is a fact about the creative aspect of language use that speaker S uttering free expression FE in context C is offering FE as an appropriate and novel contribution to what there is to say given C. It is possible for FE to be novel even if the set to which it belongs, S(FE), is finite but

large: a particular FE may happen to fall outside the range of what the hearer has heard before, or of what has been said with respect to C. If FE is drawn from an infinite S(FE), the probability of any particular FE having been used before drops to zero, giving us a formal basis for regarding any arbitrary FE as a novel contribution. This is why, in our thinking about the novelty property, we often associate it with the infinity of sentences – the flip side of the fact that a sentence can be as long as one pleases, with no upper bound. But this association, as we normally state it, takes only the syntagmatic axis on board and considers only sentence-length Free Expressions.

If we consider an FE smaller than a sentence but participating in a rhyming relation, we can associate its novelty with infinity along paradigmatic lines, thus beginning to use the space that Juxtapose creates for us. Hence my decision to concentrate on poetry at this stage of the discussion. Assume conservatively, for argument's sake, that the set of subsentential FEs in English (or some otherwise characterized set to which an FE we are considering belongs) is large but finite. In other words, suppose that our intuitions about possible poems, reader responses etc. make it reasonable to claim that no line of verse can be longer than, say, sixty syllables. Even so, the FE *their green felicity* in the Keats poem fragment (2) below – evidently a finite-sized object – counts as a member of a rhyme-set S(FE) whose initial members are *too happy*, *happy tree* and *their green felicity*. This two-member rhyme-set is indefinitely extendable, by adding an FE', an FE'', etc.; overt addition, part of the labour of writing a long poem, may have some psychologically determinate upper limit if it turns out that humans cannot respond to any epic that trumps the Mahabharata's 200000 verses; but intertextuality invokes covert members of S(FE). Thus even on conservative assumptions a subsentential FE, considered as a member of a rhyme-set S(FE), is formally associable with infinity along the same lines as a sentence is. As all producers and consumers of poetry know, a line in a poem does not carry its meaning alone, but in the context of one poem in particular and poetry in general, a property only crudely quasi-formalized by placing it in an S(FE):

- (2) In a drear-nighted December,
 Too happy, happy Tree,
 Thy branches ne'er remember
 Their green felicity:
 The north cannot undo them
 With a sleety whistle through them,
 Nor frozen thawing glue them
 From budding at the prime. (Keats 1971: 195)

Summarizing, I am saying of an as yet unspecified unit, provisionally labelled as “a line of a poem,” that it is part of a potentially infinite paradigmatic set, and that this property helps make sense of the fact that uttering the line is a novel contribution to some context C in relation to which one utters the line. I am proposing that this novelty parallels the novelty of a sentence as understood in terms of the infinity of the set of sentences.

It becomes easier to discuss this parallelism if I redescribe a “line of a poem” as an *RC-String*, a minimal bearer of an RC (a rhythm contour). RC-Strings and Sentences are two types of *vehicle* that share certain fundamental properties across the prose-poetry boundary. But my account leaves the boundary intact. What has been said already differentiates poetry from prose, but gives us a new basis for exploring shared properties. Rhythm is constitutive of each line of poetry, of each RC-String, which formally counts as novel to the extent that rhyme (or some other factor responsible for rhyme-set analogues) places it in a potentially infinite set.

Now suppose that every vehicle, in order to carry novelty, must be anchored in the familiar and must fly a novel kite. Call the pertinent segments its **Anchor** and its **Kite** – assuming, for concreteness, that the anchoring and kiting functions are always best served by postulating bounded segments rather than non-localized relations between the vehicle and its context. In the case of the Sentence, the Topic/Comment divide is familiar; we hereby identify it as instantiating anchor/kite in prose. For the RC-String, we shall not multiply terms beyond necessity, but stick to Anchor and Kite. Crucially, in both vehicle types, the anchor comes first and the kite follows.

Given these decisions, it now becomes possible to take up an empirical issue. The familiar poetic device exemplified in text (2) above, rhyme, involves a couple of sounds at the end of one line of verse echoing those at the end of an earlier line. Now consider (3) and (4), written flippantly to make the formal point that such passages, where the mirror image of the rhyme constraint holds, do not instantiate a possible natural language versification system –

- (3) Sliding downhill is a choice, but
 Sly apostles terrify us;
 Forty winters hit your brow when
 Forsythe goons hold these kids hostage.
 Age-old perils circumscribe us:
 Aimless jaunts deplete our assets.
 Why try serious moves? We always
 Whine our way past danger, don't we?

- (4) For all the fake tears that you shed now
 Will not revive a single victim.
 Forget it: you are always lethal.
 We have no choice – we hate and fear you.
 Sweet talk brought us under your shadow;
 Yet our sangfroid will pull us through.
 Swedes tricked us into losing hope:
 Yemenis will restore our glory.

These texts have been written to illustrate Mirror Image Rhyme, MIR. This device involves a couple of initial sounds of one line of verse echoing the initial sounds of either the immediately preceding line, as in (3), or the relevant preceding line in such a rhyme pattern as the ABAB scheme in (4). By MIR I mean a system distinct from the empirically attested device of Initial Alliteration, whose relatively common **word-initial** variant is exemplified in *Four faithful friends fought for the fairest flame*. As a formal exercise, MIR falls within the range of the learning capacity of poets and readers. People play acrostics and other verse games; to find a niche for MIR in a baroque system is not a cognitive or cultural impossibility. But apparently no culture, in fact, uses MIR as the default on which its poetic device architecture rests. This phenomenon calls for an explanation. The outline account I am offering in this paper begins to provide one. *Prima facie* the No MIR Default Hypothesis, NMDH, is empirically confirmed across the board. Why does NMDH hold?

The account rudimentarily developed here suggests the answer that rhyme, which ties one RC-String to other RC-Strings, is a focalizing device and needs to appear in the Kite part of the RC-String; for that is where a recurring salient sound sequence can be noticed as part of the vehicle's novel contribution. If we were to tuck a focalizing device away in the Anchor segment, as required under MIR, it would become unnoticeable and impossible to use as the structural basis for the paradigmatic sets organizing the poem. This explanation holds fundamental principles of language design responsible for the typological unavailability of MIR as a default principle in a poetic system. MIR is available for games, but cannot serve as the default device making poetry tick throughout a language the way rhyme can. On these assumptions, Initial Alliteration is available as a poetic organizing device because it autosegmentally "spreads" all over the RC-String, subsuming the Kite as well.

I offer this tentative explanation (elaborated below) as an indication that the programme can be made to work. But I am doing this at the

level of quickly sketching a pursuable path through a relatively uncharted terrain. As we take real possession of the terrain, we will have to provide an account of the point Jakobson missed, an account of the normal convergence, in poetry, of syntactic constituents with RC-Strings, from which enjambement is a marked departure. Making Juxtapose target constituents will not suffice. When Juxtapose targets a sentence P with complex internal structure, we get P associating with {P', P''...}, but supplementary principles will have to say if P-internal constituents invite distinct applications of Juxtapose. Economy or optimality principles will need to manage that traffic, which is where enjambement gets characterized as a departure from some storable default.

To call the terrain even relatively uncharted is somewhat inaccurate and may offend. I hasten to add that I mean the terrain of deriving descriptively significant properties of generic conventions from fundamental principles; it would be absurd to deny the abundance of observations, of intriguing generalizations, of methodological suggestions. In that literature, there is a pertinent point that I must address to complete my remarks on MIR. Fabb (2010), citing an earlier paper of his, reports that “Fabb (1999) argues for a distinction between alliteration and rhyme: alliteration holds between adjacent sections of text, but rhyme need not (and so can form ABAB patterns, unlike alliteration). On this basis, we would classify the Finnish and Mongolian onset+nucleus repetitions as alliteration because they are strictly local (within the line, or between adjacent lines), and not classified as (reverse) rhyme.”

The desire to accommodate the data Fabb provides – under his illuminating description – within my account is what makes me speculate that alliteration may require treatment in autosegmental terms. But obviously what I have said so far leaves the pertinent difference between verse-initial alliteration and rhyme – that rhyme can have an ABAB variant while line-initial alliteration cannot – underived from fundamental properties of language. What would a serious derivation look like?

Recall that Anchor/Kite in verse is an analogue of Topic/Comment in prose. Suppose we pursue this analogy and make the working assumption that, wherever a Focus occurs, it is part of the Comment. Examples of Topic/Comment structure in the syntax include (5) *To forgive/ is divine* and (6) *That John will stop smoking/ seems obvious*; at a pinch, we can embed (6) within format (5) and say (7) [*That to forgive/ is divine/ seems obvious*] – marked, but possible. Note that the structure of (7) displays a little topic/ little comment structure within the

big topic. The RC String analogue of (7), with anchors and kites, doubles (7) to yield ABAB rhyme.

Now suppose that line-initial alliteration in Mongolian is an RC String analogue to (8) *It is Jóhn who will stop smoking*, where the Anchor shrinks to near zero (to *it is*) and the Kite begins extremely early – at the focal *Jóhn*. Reasoning analogically, we note that (8) does not give rise to a (7)-like double topic-comment structure, and we then infer that line-initial alliteration will not support an ABAB pattern.

A serious derivation of the incompatibility of MIR with ABAB would look like a translation of this bit of analogical reasoning into the mode of a formal deduction from conceptually explicit premises. In order to get there, one needs to first create abstract anchor-kite templates that generalize over topic-comment syntax and anchor-kite poetic structure; such abstractions will remain unmotivated until the project is demonstrated to be worthwhile. The point of the present study is to do the demonstrating.

What has been said so far shows that the Juxtapose Alpha operation and RC Strings endowed with Anchor-Kite structure associate certain phenomena with fundamental properties of language. Notice too that these devices implement Chomsky's suggestion that we avoid the choice metaphor. Juxtapose places its targets in a paradigmatic space that no longer works in terms of an item being chosen from a finite set.

But how do such devices, which link vehicles to infinity so clearly in the case of poetry, help install naturalistic prose as a generic default? At a first approximation, forcing a Juxtapose whenever a topic-comment-endowed sentence is enounced – a move made for prose in Section 2 – means each such sentence stands up and is counted with all sentences that possibly can or actually do precede or follow it in the passage. Now that every constituent clause with a topic-comment structure is associated with an obligatory application of Juxtapose, note that certain but not all embeddings contribute enunciative complexity – recall my invocation of Ducrot (1984) in Section 2 – and that both complex sentences and appropriate simple sentence sequences in a coherent prose passage correspond to strophe structure in verse. These count as prosaic and poetic instantiations of the fundamental recursive property of language.

On the ground, the austerity of applying only obligatory Juxtapositions also provides the space for questions and answers etc. to match up and find each other, establishing freely interpreted (rather than conventionally stylized) isomorphisms and complementarities, thus weaving together bits of a conversation, or of a conversational turn, or of a prose passage. With some imagination, readers can relate

these remarks to issues concerning coherence and cohesion. Thus the result of performing just the obligatory applications of Juxtapose is naturalistic prose, which thus counts as a generic default.

Furthermore, installing naturalistic prose as a default means that a poetic passage too remains parsable as a prose text in the sense that the obligatory LF applications of Juxtapose for every topic-comment-endowed enunciation also occur in poetry. To keep the basic contours of our account visible, the present paper abstracts away from the consequences of this fact; this is just a matter of expository strategy.

Where does such an account house the idea that poetry, though not the default genre, is central to language? At the point that RC Strings are what happens when PF-anchored applications of Juxtapose settle for “optimal,” Goldilocks-sized targets, just big enough to hold a Rhythm Contour and support Anchor-Kite structure (thus manifesting the fundamental properties of a vehicle), but just small enough to sponsor a proliferation of juxtaposition relations in a text.

Why, given this account, should verse loom so large on a child’s screen? Because the acquisition trajectory puts PF first and LF second, and at the same time the child needs to acquire the Anchor-Kite structure and recursion by using the earliest resources available. This acquisition prepares the child for more intricate Topic-Comment and Subject-Predicate realizations of Anchor-Kite structure and syntactic realizations of recursion when it is time to sharpen the tools that nursery rhymes provide baby versions of.

5. SOME CONSEQUENCES

This section outlines some consequences of Juxtapose for theories that embed language in cognition and for our understanding of compositionality.

The minimal artistry of verbal composition, on the Juxtapose account, lies in so structuring what you say that it is designed to fit into some context or other. Considering verbal structures purely syntagmatically and in isolation from context has struck formal linguists as a rewarding exercise, justified by its spectacular successes. However, every verbal structure is in fact composed, and every composition wears its participation in infinity on its sleeve. This participation is partly syntagmatic – which has been the generative revolution’s primary concern – and partly paradigmatic, a matter that places language in the realm of the arts. Generative work, if it is to provide a serious account of the infinity of language, needs to take the

paradigmatic axis of language on board, after decades of syntagmatically focused work.

The Juxtapose account of these matters is at one level an amplification of the substantivist alternative to the standard formalist approach in generative linguistics. In a book-length articulation of substantivism, Dasgupta, Ford & Singh (2000) argue for the impossibility of any “compound word language” that consists only of compound word box within compound word box, forever, and that never builds any true sentences; once that argument is appropriately extended, it forces us to revise our understanding of compositionality.

Dasgupta, Ford & Singh (2000) focus on the constitutive importance of the fact that building a sentence calls for morphological inflection in many languages and abstract syntactic inflection in all languages. Inflection has been under syntactic investigation for several decades as an exponent of specifier-head relations. It can be reinterpreted along the lines suggested in Section 4 because specifiers are anchors writ small. The present paper is to be read as elaborating the core substantivist argument, moving the discussion from inflection alone to anchor/kite relations in general.

How does the argument, so elaborated, help us to arrive at a picture of compositionality that does better than the standard approach given at (1)?

The substantivist argument, even in its preliminary form, implied (though Dasgupta, Ford & Singh (2000) did not explicitly state) that the standard take on compositionality made the mistake of using an abstract sense of “part” and “whole” in the formulation that the meaning of the whole was a function of the meanings of the parts. As Dasgupta, Ford & Singh (2000) note, a serious theory of language must predict the unavailability of compound word languages. But even a counterfactual compound word language would have parts and wholes. Formulation (1) of compositionality is compatible even with a counterfactual world that forces language to choose from finite sets and imposes boundary parameters making the set of all strings finite. No serious theory can afford to gloss over the point that compositions are crucially free; and formulation (1) does miss that point.

The elaborated form of the substantivist argument prompts us to suggest one way of improving on (1). What launches the linguistic vehicle (as a proseworthy sentence or as a poetryworthy RC-string) into orbit is its internal Anchor-Kite factorization that dovetails the need to place the vehicle on the paradigmatic axis with the requirement that the “given” anchor should be responsible for contextualization while the

“new” kite, especially its “saliently new” focus, should manage the relation between the vehicle and its infinitely many paradigmatic companions. The fundamental language design feature of recursion is the point at which these two needs meet. The Juxtapose operation, which is what induces Anchor-Kite factorization, fans out into PF-anchored and LF-anchored applications, which yield the generic differentiation into prose and poetry with correspondingly distinct types of factorization – Anchor/Kite proper in poetry and Topic/Comment (projected as Specifier/Head all the way down the syntactic tree) in prose – and of instantiations of recursion.

Given such an account, we can replace (1) with the following formulation of compositionality, or some reformulation that incorporates a more intricate approach to generic differentiation than we have the resources to develop here:

- (9) A text is a body of sound and meaning whose pairing is mediated by general grammar, specific lexicon and conventional combinatorics. The structure and interpretation of grammatical constructions are assembled stepwise. Such assembly is guided by integrative processes that simultaneously endow vehicles of appropriate shape and size with anchor/kite articulation, aggregate these vehicles syntagmatically, and project their articulation on to the paradigmatic axis. This process of aggregation and projection stops at a finite outcome on the ground but invokes infinity. Every step in the assembly process involves a joint determination of the meaning of the product by lexical, grammatical and combinatorial factors. This joint determination principle is termed compositionality. The integrative processes lean towards phonetic form to yield poetry or lean towards logical form to yield prose, implementing recursion differently, and interweaving with such extra-grammatical factors as pragmatics differently.

How do these formal matters bear on other branches of cognitive inquiry? One obvious type of relevance arises from the fact that humans grasp a series of actions in terms of its articulation in prose that verbalizes plans for a future sequence of activities or reports a past sequence. Philosophy, psychology, artificial intelligence may therefore find it heuristically useful to relate the conceptualization of action sequences to that of prose descriptions. If our understanding of the compositional structure of a prose passage highlights the role of the Topic-Comment organization of each enunciation, it is natural to ask how this patterning relates to conceptually pertinent correlates. One such correlate is the figure-ground organization of the corresponding actions as perceived by the actor or by salient bystanders. Does the

organization of an action sequence – as perceived by some actor or observer – bring the figure-ground structures of the constituent actions into some form of interplay that needs to be made explicit? This is one research question for cognitive science that emerges from the present study.

There are also far more concrete piecemeal studies that are worth undertaking at the sequel level. In the empirical study of the psychological properties of poetry and prose, we need to: (a) design experiments that test the relative learnability of MIR and other crazy rhyme schemes, as we go about characterizing what is natural and what is crazy in these and related domains; (b) study the perceptual similarities and differences between prototypical prose, prototypical poetry, and mixed texts; (c) examine the age profile at which the crazier patterns and enjambement come within the growing child's cognitive reach; (d) cross-fertilize such inquiry with cultural diversity issues. What makes such study theoretically significant, however, is the relevance of these matters to recursion.

Our understanding of recursion so far has focused on sentence embedding. But this is a special case of projecting paradigmatic facts on to the syntagmatic axis. The present study proposes that the specific human surplus relative to other primates is such biaxial projection itself, with sentence embedding and infinite sets of paradigmatically juxtaposed Rhythm Contour Strings counting as special cases.

Recall the following classic passage about the human surplus: “‘Even the best tool for a given problem is lost on the chimpanzee if it cannot see it simultaneously or quasi-simultaneously with the goal.’ By ‘quasi-simultaneous perception’ Koehler means instances when tool and goal had been seen together a moment earlier, or when they had been used together so many times in an identical situation that they are to all intents and purposes simultaneously perceived psychologically (Koehler 1973: 99-100). Thus the consideration of ‘insight’ does not change our conclusion that the chimpanzee, even if it possessed the parrot's gifts, would be exceedingly unlikely to conquer speech” (Vygotsky 1996: 77-78). We are suggesting, in this paper, that the paradigmatics of poetry and the syntagmatics of embedded sentences will turn out to be empirically distinct frontiers that even sign language trained apes cannot cross, and that theoretical work will show that these two phenomenal domains reflect the same underlying formal principles.

As such extensions of this research into cognitive science make some headway, the linguistics of these matters will also become clearer. For one thing, the ubiquity of EPP (Extended Projection Principle)

phenomena – intriguingly unmotivated by considerations of semantics – can now be explored on the basis of the factorizations imposed by Juxtapose. For another, specifying the class of possible syntactic parameters is known to involve inflection and its concomitants (Borer 1982); we may hope that that enterprise will flourish again. Besides, syntacticians enamoured of parallel workspaces, sideward movement and other byproducts of multiple spellout (threads initiated by Nunes 1999; Uriagereka 1999; Nunes & Uriagereka 2000) may find syntax-internal uses for Juxtapose proper. Such moves will mean breaching the frontier between embedding and poetry within formal syntax itself, with consequences for the way Fabb (2009) configures symmetric and asymmetric relations in his account of the parasitic relation between poetry and the generated paraphrase from which it steals an interpretation.

Changing our anchor in linguistics in these ways will mean flying our cognitive kites differently. We currently lack the resources to outline with any clarity where these moves will lead; but I hope to have convinced the reader that we do not have the choice of not exploring them.

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APPENDIX: THE JUXTAPOSE OPERATION

Since Juxtapose Alpha operates at the same level of generality as Affect Alpha, some readers may first need to familiarize themselves with how Affect Alpha works in standard systems of generative grammar.

Most readers are familiar with first generation formal syntactic devices – with phrase structure rules, such as $S \rightarrow NP VP$, and with syntactic transformations, which either move a constituent (Passivization moves object to subject, Wh-Movement moves a wh-constituent to the front of the sentence) or delete a constituent (Imperative Deletion deletes the subject *you*).

Formally careful second generation syntactic systems generalize constituent movement rules, arriving at the formulation "Move Alpha." In those systems, movements in syntax are not stated in the format of particular rules that encode extraction site and landing site details. Instead, syntactic principles are invoked, under the guidance of parameters that specify the way language (sub)types fan out, to explain why the class of extraction sites and landing sites is what it is in a given language.

Second generation systems similarly subsume all syntactic deletion and insertion rules under abstract superordinate operations. "Affect Alpha" is the generalization expressing the idea that the syntax can move/ delete/ insert anything anywhere provided that the fundamental principles allow those particular applications of the operations. These operations can apply in the syntax proper, or in the PF (Phonetic Form) module of grammar, or in its LF (Logical Form) module; the details vary across implementations.

The present study proposes a Juxtapose Alpha operation at the same level of generality as Affect Alpha. Each time this operation applies, some item in a passage (a sentence, a line of verse) is given the supplementary status of a paradigmatic axis neighbour of some corresponding item/s earlier or later in the passage; this status is supervenient on the structure that the grammar has already put in place. Every application of Juxtapose minimally requests the listener/ reader to compare the later and the earlier items and note in what ways they differ from/ resemble/ complement each other. Beyond this minimal request, certain applications of Juxtapose, in the PF module, make the heavier demands involved in versification. Applications of abstract operations are known to have distinct, module-dependent formal effects; Affect Alpha in the PF module has linearization properties that its LF applications lack.

One way to implement the anchor-kite idea presented in the text is to have PF-oriented applications of Juxtapose induce a factorization of the tree that delineates the kite and highlights its rhyme or other focal device for managing its paradigmatic neighbourhood. In the case of LF-oriented applications of Juxtapose, just how this account should deal with Topic-Comment, Subject-Predicate, and other Specifier-Head dyads that the regular syntax recognizes is an open question. Different models implementing the programme proposed here will address the details differently. I have assumed here that a poetic text must count as also instantiating prose, and that therefore both LF and PF applications of Juxtapose occur in poetry; a serious approach to avant-garde writing that suspends many normal conventions of writing will need to tweak this account in various directions to attain observational adequacy and then to work towards insightful descriptions.

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