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**Remix and the Dialogic Engine of Culture:
A Model for Generative Combinatorality**

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Is the cliché “everything is a remix” more than trivially true? The terms remix, appropriation, sampling, and mash-up are used so generally, in so many contexts, and at different levels of description that they don’t provide a useful vocabulary for explanation.¹ “Remix” has become a convenient metaphor for a mode of production assumed (incorrectly) to be specific to our post-postmodern era and media technologies (though with some earlier “precursors”), and usually limited to describing features of cultural artefacts as “outputs” of software processes (especially in music, video, and photography). “Remix” and related terms are used for *genres and techniques of composition* (collage, assemblage, music remix, appropriation), artistic *practices* (with a variety of self-reflexive, performative, and critical strategies), media and technology *hybridization* (new combinations of software functions, interfaces, and hardware implementations), and *cultural processes* (ongoing reinterpretation, repurposing, and global cross-cultural hybridization).² What connects all these manifestations of remix and hybridity? It’s generally recognized that new works are created with references to other works, but the underlying generative principles for new combinations of meaning are only vaguely understood and foreign to the legal discourse for intellectual property. What else is “remix” telling us if we open up the cultural black box?

First, we need to find ways to move beyond the barriers created in ordinary discourse and by social misrecognitions about meaning making in cultural genres. Creative works that we call “remix” are usually considered only at the surface level of recognizable, recombined references, quotations, and fragments from other works (“content,” “source material,” cut-and-paste outputs), rather than at the level of the underlying *generative* or *creative* principles for recombination, reinterpretation, and collective meaning that make new cultural expression possible in any form.³ In other words, we need to move beyond

descriptions (itemizing surface features after the fact --“this was the source for that”) to *explanation* (how and why remixes are pervasive, meaningful, and necessary -- what grounds the meaning and the making).

Riffing on the great soul album by Marvin Gaye, *What’s Going On* (1971), which was dialogically answered by Sly and the Family Stone’s often-sampled, funk album, *There’s a Riot Going On* (1971), we can say that there’s always been a “deep remix” going on at multiple levels simultaneously, and we need to find ways of bringing these ordinarily unconscious and ubiquitous processes up for awareness and description.⁴ “Remix” in all of its manifestations needs to be turned inside out, reverse engineered, and de-blackboxed, so that it can reveal the dynamic, generative processes that make new (re)combinatorial expressions in any medium *possible, understandable, and necessary*.

Working toward this end, I will introduce a new synoptic view of concepts and research approaches as heuristic steps toward a more complete description of the *generative dialogic principles* behind remix and all forms of hybrid combinatoriality. Remix and appropriation works are products of the same *normative* processes that enable all symbolic expression and are not special cases requiring genre-or medium-specific justification. Many sciences and disciplines now intersect on understanding human symbolic expression in all forms, and provide important conceptual and empirical resources for uncovering the generative, combinatorial principles at work in remix and hybrid works. Making these foundational processes understandable and describable allows us to reposition remix and hybrid works in the living continuum of culture, thus enabling this creative principle to do much more important critical work for us in an era of intense debates about the status of authors, artists, individual works, the cultural archive, intellectual property, and the function of common culture and cultural memory.

My proposed redescription and de-blackboxing of “remix” draws from conceptual tools and research from disciplines that converge on the study of meaning-making as a generative and intersubjective process, the constitutive structures of symbolic thought and expression, and the function of symbolic artefacts and technologies of mediation in defining cultural identity. This interdisciplinary research provides a knowledge base for revealing how all works in a culture are necessarily constituted in ongoing dialogic chains and networks. The main approaches that I mobilize here expand on the concept of dialogism from Bakhtin and sociolinguistics, generative models of meaning-making (*semiosis*) from Peircean foundations in semiotics and recent interdisciplinary work, and

the generative-combinatorial-recursive models of language and symbolic cognition from linguistics and the cognitive sciences. Other important intersecting approaches are the explanatory models for media systems, mediation, and social-technical-material networks in Actor-Network theory and mediology,⁵ and recent approaches to technological hybridization and combinatoriality in digital media theory, interface design, and software studies.⁶ My approach presupposes the background of the canonical arguments in structuralism, poststructuralism, postmodern cultural theory, and communication theory (which I will neither rehearse nor cite), but I will focus here on exploring the potential of a broader interdisciplinary model.⁷ Although my outline here focuses mainly on formal structures that hold across symbolic systems, cultural artefacts like artworks and musical compositions represent *meanings in use*, and must be understood in the larger continuum of social contexts and material culture.⁸

Of course, all these fields have extensive bibliographies and complex histories of research and debate, and any summary of common areas of interest will risk eliding over intra- and inter-disciplinary disputes and disagreements. I will only be able to outline a conceptual map of this interdisciplinary terrain here, and suggest some ways to mobilize these combined resources for new research. My approach is motivated by two central questions: (1) what makes dialogic, combinatorial expressions in any symbolic form *possible, meaningful, and necessary* in living cultures, and (2) how can we develop a fuller description of the generative-creative principles underlying remix and hybrid works for more compelling arguments in the context of current debates?⁹

An Overview of the Conceptual Repertoire: Meaning Generation, Dialogism, Combinatoriality, and Recursion

Human cultures are constituted in the social use of symbolic artefacts that enable durable expression within historically accruing meaning networks.¹⁰ Today we inhabit a *semiosphere* (in Yuri Lotman's term, the cultural sphere of interconnected meanings mediated in symbolic exchanges),¹¹ formed by a hybrid system of old and new media with built-in combinatorial processes for new meanings and media hybridization. The ongoing, recombinatorial principles of culture have often been noted in general ways, and emphasized by many recent scholars:¹²

Creators here and everywhere are always and at all times building upon the creativity that went before and that surrounds them now.¹³

The world of art and culture is a vast commons, one that is salted through with zones of utter commerce yet remains gloriously immune to any overall commodification. The closest resemblance is to the commons of a language: altered by every contributor, expanded by even the most passive user.¹⁴

[C]ulture is a complex process of sharing and signification. Meanings are exchanged, adopted, and adapted through acts of communication – acts that come into conflict with intellectual property law.¹⁵

Although the general concept of new cultural expressions created in a continuum of interpretive responses over time is well-recognized, the underlying normative and necessary generative principles for collective cultural expression remain vaguely understood and poorly defined.

Questions about what drives the combinatorial meaning-making capability leads to the macro question of *generativity* in culture, which was usefully defined by Yuri Lotman, the founder of an important school of thought in cultural semiotics:

The main question of semiotics of culture is the problem of meaning generation. What we shall call meaning generation is the ability both of culture as a whole and of its parts to put out, in the “output,” nontrivial new texts. New texts are the texts that emerge as results of irreversible processes..., i.e. texts that are unpredictable to a certain degree.¹⁶

Lotman defines cultures as structured, collective memory systems with dynamic, generative principles for new meanings produced from the whole system of symbolic resources in a culture.¹⁷ “Texts,” of course, designate any form of organized symbolic expression, and “nontrivial new texts” are those emerging from the dialogic process (non-repetitive expression), expressions in any medium that expand into other networks of meaning in unanticipated ways. How can we describe this generativity

in a way that accounts for macro-level complexity but also enables methods for describing cultural expressions at micro-levels of detail?

Finding adequate ways to map out what happens behind all the *observable* features of expressive forms in a culture is difficult from the start because we can't catch ourselves in the routine and spontaneous process of making meaningful expressions because we produce them unconsciously and non-self-reflexively. Just as we are ordinarily unaware of the grammatical, semantic, and pragmatic rules and codes that allow us to generate unlimited new expressions in unforeseen new contexts of meaning in our own native language, "remix" in all of its forms sits on top of ongoing, generative, dialogic, and combinatorial processes that make all our symbolic systems from language to multimedia possible but *unobservable* during the process of expression and understanding itself. We have to "reverse engineer" the observable outputs and uncover what made them possible. This can be done by working through descriptive vocabularies (a metalanguage) for conceptual models of the meaning processes that we are always *in*, but use unselfconsciously.

As forms of ordinarily un(self)conscious "generative grammars" instantiated in various genres and media of expression, the underlying dialogic and intersubjective processes are not visible as *features* of expressions because they form the grounds of their possibility *per se*. This observation has direct consequences: we can't account for how and why "remix" and combinatorial forms of expression are as recurrent, meaningful, and culturally prominent as they are by merely describing observable, surface features (e.g., instances of expressions with "sources"). Thinking of relations among cultural expressions and artefacts in terms of itemizable "sources" usually devolves into making inventories of "originals," "copies," and "derivations," terms and concepts with their own loaded, inconsistent histories of meaning. The "originals and sources" starting point requires disconnecting instances of expression from the presupposed entailment meshwork of other expressions and from the rules and codes for creating those genres of expression as they function in a community. Works become reified, individualized, productized totalities, outputs from cultural-technical black boxes with preprogrammed ownership labels.

Participating in this "sources and derivations" discourse, with the level of description it imposes as natural and obvious, is a form of what Pierre Bourdieu has termed "collective misrecognition."¹⁸ We are continually socialized into maintaining—under heavy ideological pressure--ways of preserving the *misrecognition* of sources, authors,

origins, works, and derivations in order to sustain these *social* categories as *functions* in the political economy and the intellectual property legal regime for cultural goods.¹⁹ Without other conceptual tools and a method for understanding what motivates and generates the observable features of cultural works, we can only buy-in to a discourse of misrecognitions that facilitates a legalistic quantification of atomic property units. We need to pry all this loose, breaking the cycle of misrecognition, with a different concept base for more useful levels of description and analysis.

A Generative Model of Meaning-Making

Most cultural works that we experience--musical genres, movies, TV shows, and Websites--are *multimodal* artefacts, composed of stacks, bundles, and layers of multiple, concurrently enacted symbolic systems.²⁰ For all the meanings we use in seemingly transparent ways every day, the human symbolic faculties use parallel architectures with rules and procedures for combining components like sound and visual units into meaningful wholes. To understand the necessary processes in these combinatorial structures we need to start from an *extensible* model of meaning that usefully holds for descriptions across symbolic systems (like language, images, and musical sounds in their multiple genre-specific combinations). Students in the humanities and social sciences are familiar with the French poststructuralist schools of thought that work from Ferdinand de Saussure's model of signification,²¹ but a far more productive model is provided by C. S. Peirce. Peirce's model for generative meaning-making processes, which he termed *semiosis* (symbolic productivity), continues to provide new insights in many fields of research.²² Throughout his career, Peirce struggled with ways to describe symbolic productivity as a dynamic activity depending on simultaneously perceptible, cognitive, dialogic, pragmatic, and intersubjective functions.²³

Peirce zeroed in on the central problem of symbolic thought, meaning-making, and conceptual knowledge with a model that unifies production, creation, encoding, or expression (from the side of meaning generation) with interpretation, reception, or decoding (from the side of meaning understanding). Unlike theory based on static, binary models of the sign-unit (like that developed by de Saussure), Peirce discovered that meaning production is a dynamic *activity* or *process* (*semiosis*) through time and levels of conceptual abstraction activated by human subjects. Any set of symbols--from language and mathematics to pictorial images or

musical sounds--incorporate a structure and a process enabling anyone to think with others and form nodes of cognitive relations in concepts that always seek completion in further relations. Meaning and learning are closely related in our dependence on symbolic-conceptual steps that develop through and in time: ²⁴

[The observation that for] any thought, there must have been a [prior] thought has its analogue in the fact that, since any past time, there must have been an infinite series of times. ...

[E]very thought must be interpreted in another, ... all thought is in signs. ²⁵

[A] sign is something by knowing which we know something more. ²⁶

Thought ... is in itself essentially of the nature of a sign. But a sign is not a sign unless it translates itself into another sign in which it is more fully developed. Thought requires achievement for its own development, and without this development it is nothing. Thought must live and grow in incessant new and higher translations, or it proves itself not to be genuine thought. ²⁷

Symbols grow. They come into being by development out of other signs... We think only in signs... A symbol, once in being, spreads among the peoples. In use and in experience, its meaning grows. ²⁸

What are the consequences, then, if thought and meaning are symbolic process continually emerging through time and always embodied in material-symbolic form? In Peirce's primary elucidation of meaning-making, "the meaning of a sign is the sign it has to be translated into."²⁹ Meanings "grow" in a recursive process in the sense that from one state of symbolic representations we develop higher or more inclusive concepts (known as levels of abstraction) that can only be expressed or represented in further signs. ³⁰

By redefining human symbolic activity (meaning productivity or generation) in a continuum of collective uses and interpretations over time, we find that "getting a meaning," as we would say, is what emerges

as a response from interpretive sequences expressed in the socially testable and publicly validated form of any symbolic activity (e.g., speech, writing, images, music). Meaning-making is what someone *does* or *activates* in this living process by participating as semiotic agent in a social-cognitive position with others. Expressions and cultural artefacts can only function as meaningful, and recognizable as such, in *intersubjective* activity that connects expressions understood (past or prior cognition symbolically realized) to meanings developed in further symbolic combinations (connecting and projecting meanings toward future cognition and ongoing meaning-making).

Peirce's key insight--the meta leap beyond the problem of the Cartesian private mind and private sense perceptions--was combining the *standing-for* relation in the symbolic structure with sequences of intersubjective *symbolic cognition* as the ground of meaning:

A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign.³¹

Meaning-vehicles like words, statements, images, and musical forms are used to convey meaning because they *stand for* something inter-individually cognitive, and only for (in relation to) a cognitive agent, a meaning subject, an interpreter in an interpretive community, who recognizes the kind of sign and its conceptual symbolic possibilities (for example, the multiple ways that words, images, and musical sound patterns invoke meanings for those in an interpretive community).

Peirce's specialized terms and categories of signs are often a barrier to appreciating what he was trying to figure out (though never in a complete way), and I'll only point out some top-level terms and concepts useful for this chapter. Peirce termed the *interpretable* perceptible form of a symbolic relation a *representamen* (a *type* of interpretable input, what we recognize in perception as interpretable, like speech sounds and pictorial images). These interpretable sign-vehicles relate to concepts (which Peirce termed the "Object") in arbitrary and conventional ways through the system of rules and codes that enable something perceptible to be interpretable. The conceptual networks activated through shared signs interpreted in the standing-for relation (*interpretants*) are not privately "in" *anyone's* mind or "in" the perceptible *properties* of sign vehicles like

the sounds of a language, written characters, or the visual information we perceive from images. Symbolic cognition is not explained through individual psychology, nor can the networks of further meanings be explained by behaviorist causality (i.e., perception of symbol tokens as a stimulus causing a private meaning response). Meaning-making can only happen through communally cognitive, intersubjective, rule-governed processes unfolding in and through human lived time.

How we build or associate meanings from the *standing-for* relation forms the third part of Peirce's meaning triad, which he termed the *interpretant* (that by means of which meaning or interpretability is disclosed), a cognitive step forming one node of relations in the unfolding development of meaning. In one of his well-known formulations of the model he states:

A sign stands for something to the idea which it produces, or modifies... The meaning of a representation can be nothing but a representation.... Finally, the interpretant is nothing but another representation to which the torch of truth is handed along; and as representation, it has its interpretant again. Lo, another infinite series.³²

The conceptual networks (*interpretants*) activated through making meanings in symbolic relations are thus not privately "in" anyone's mind or in the perceptible *properties* of sign vehicles like the sounds of a language, written characters, or the visual information we perceive from images. Peirce observed that whenever we "get" a meaning, it is always representable or expressible in additional signs in ongoing sequences (even in individual thought). Peirce's model of the ongoing development of meaning is known as *infinite semiosis*; that is, meanings unfolding in open-ended, unlimited sequences and networks with interpretive paths that are unpredictable from any one state in time.³³

Translating Peirce's concepts into our current vocabulary, we can say that symbolic forms--like an understood image or statements in our language--are a medium or interface for combining something individually *perceptible* with something intersubjectively *cognitive*. Since we live collectively in and through time, symbolic expressions in all media sustain continuities in social, communicable states of thought. This necessary structure of meaning-making developing symbolically and socially in lived temporal contexts is the ground of possibility for all our meaning and communication systems: the symbolic function cascades out through the

multiple orders of conceptualization we use every day from language and writing to visual media and software-produced artefacts (see Figure 1).

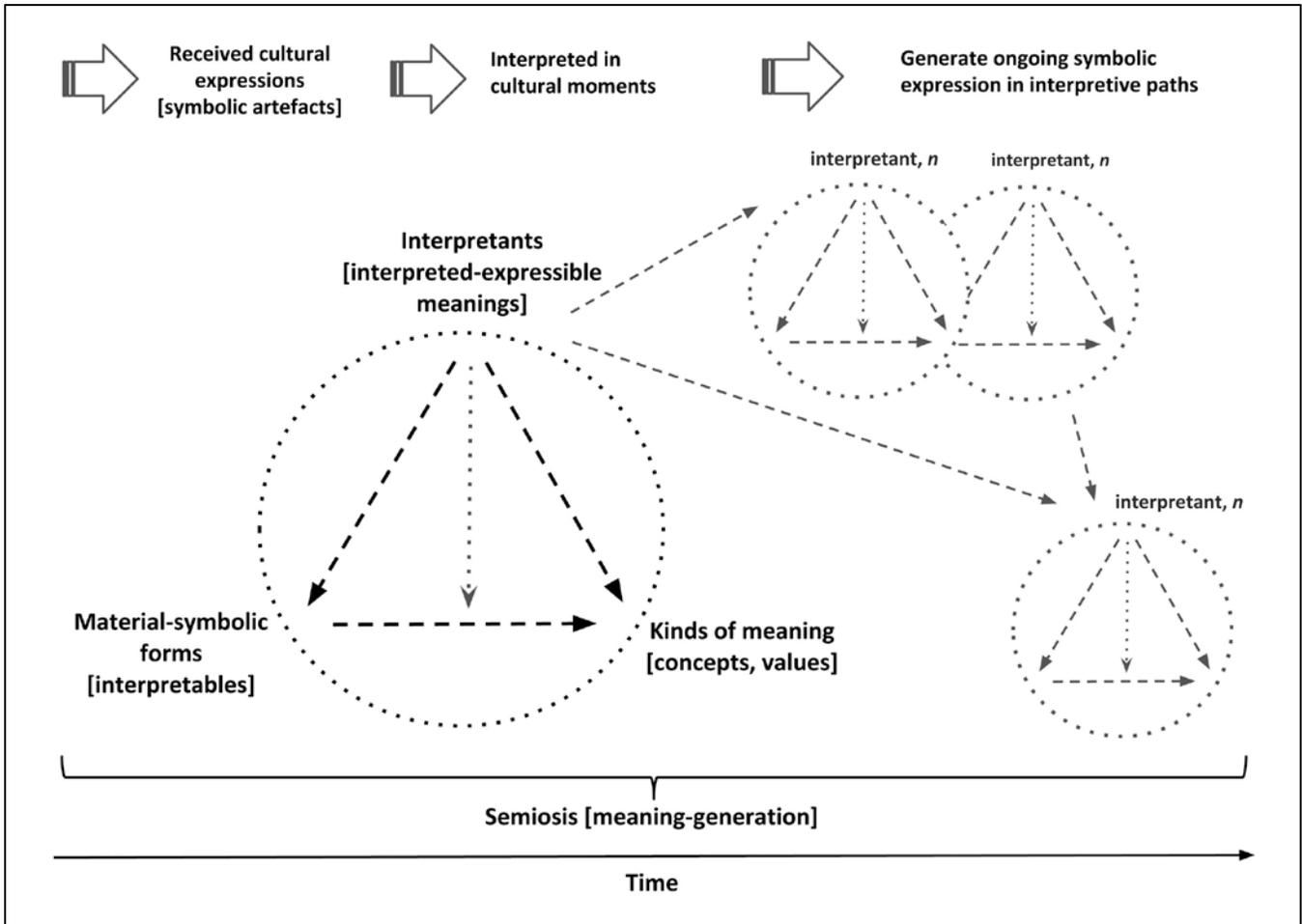


Figure 1: Extending Peirce's Model of Semiosis

For Peirce, the necessary structure of the symbolic process in human thought is always already dialogic, entailing interpretations of prior signs (an “input,” as it were, from prior structures of meaning), the “meaning” of which (a new subsequent “output” meaning-structure, the “interpretant”) can only be expressed, represented, instantiated, or developed in further signs. Because this symbolic process becomes active for us individually by inhabiting collective and communal symbolic systems (especially our native language), we are able to do the grandest leap of all—getting outside our own heads and private experience to sharable, intersubjective concepts, meanings, and values expressible beyond any one temporal instance or the limitations of one mind.

Emerging in recursive symbolic processes, meaning isn't something reified or fixed in any one set of material-perceptible tokens (as

expressions “in tangible form,” in the copyright definition). Meaning grows and develops with new interpretations in ways *unpredictable* from the state of meanings realized at any one point in time. For Peirce, this recursive, future-directed continuum of meaning-making is *dialogic*:³⁴

All thinking is necessarily a sort of dialogue, an appeal from the momentary self to the better considered self of the immediate and of the general future.³⁵

[E]very logical evolution of thought should be dialogic.³⁶

Thought is what it is only by virtue of its addressing a future thought which is ... more developed. In this way, the existence of thought now depends on what is to be hereafter; so that it has only a potential existence, dependent on the future thought of the community.³⁷

Any cultural artefact thus forms a dense network of symbolic relations and future-directed meanings in the semiotic continuum. A cultural work is an interface to the cumulative “deep remix” that makes it possible. Any work represents stored semiosis, a momentarily re-summed dialogic development of possible meanings interpretable in a community, meanings *made* by instantiating continually additive interpretability.

In the complex bundles of symbolic functions in contemporary genres and media forms, we see the emergent process of meaning generation unfolding countless times every day. A news show typically begins by interpreting sources of mediated information, and then the interpretive output—the news show--will be in the form of *another mediated representation* in an open sequence. Further, using the codes of irony and parody, the whole genre of a news show and its framing of content can be reinterpreted like *The Daily Show*. New songs get released into the popular music stream every day, and musicians in every genre are always tacitly saying, “yeah, yeah, we know all *that* (prior instances of the genre, prior ways they are taken to mean), it’s all in there, been there, done that; but what about *this*?” (the new piece, a new interpretation of a genre, a new combinatorial expression that presupposes the already-expressed). We can catch ourselves in the daily, ordinary semiotic process every time we or others say, “in other words...”, “what he meant was...”, “that scene in the movie is so Hitchcockian,” “that song is riffing on The Beatles...”

So, the first steps toward uncovering the generative structure of meaning-making gives us an important, generalizable, productive law of semiosis: *the interpretation (meaning) of a set of signs will always take the form of another set of signs*. The “outputs” of *meanings understood* become new “inputs” for further *meaningful expressions* that, when received by others, align productively with other meaning nodes activated by other meaning agents in a culture. Meaning, writ large, is always *Remix+*: meaning emerges through a “remix” of symbolically structured “inputs” re-structured into further “outputs” with a “value-add,” a development of additional conceptual relations and contexts for other routes in a meaning network.

Generative Dialogism

Most artists, writers, and musicians know intuitively that they work from generative dialogic principles that enable new combinations and hybrid expressions in the genres that they work with. Herbie Hancock recently described the well-known dialogic hybridization in jazz in his own way:

The thing that keeps jazz alive, even if it’s under the radar, is that it is so free and so open to not only lend its influence to other genres, but to borrow and be influenced by other genres. That’s the way it breathes.³⁸

Jazz has long been the paradigm of a generative art form based on responses to, and reinterpretations of, expressions by other musicians and ongoing fusion with other genres, sounds, and traditions both in live performance and studio compositions.³⁹ With its ever-accruing encyclopedia of music resources and intertextual relations, jazz exemplifies a form of *practiced dialogism* that opens up the deeper underlying generative processes in other cultural forms.

A useful way to bring the underlying dialogic processes up to a more conscious level of awareness comes from combining Peirce’s central insights about the semiotic continuum of meaning generation with Mikhail Bakhtin’s discovery of the dialogic principle in spoken and written genres of expression.⁴⁰ The concept of dialogism, which has been extensively developed in many fields, is essential for building out an extensible model of interindividual meaning-making that also explains the necessity of linking new expressions to those of others’ and to prior

expressions in the memory system formed by a culture's accrued artefacts.⁴¹

Peirce redescribed meaning-making as a conceptual-dialogic process that necessarily projects prior interpretable meaning units into future-oriented interpretable meaning units. Bakhtin's discovery is parallel to Peirce's but emerged from analyzing expressions in social use, in living conversations and in dialogue representing different voices and points of view in written genres. Bakhtin discovered that we are always referencing, assuming, quoting, embedding, and responding to the expressions of others, whether in direct references or as a background of unexpressed presuppositions. Everything expressed in social situations and in larger cultural contexts is fundamentally grounded in otherness--others' words and others as receivers of, and responders to, anything expressed. Anyone's expression in speech and written genres is always inhabited by the words of others, other voices and other contexts in time or place, and others different in identity from one's own:

The word [meaningful expression] is born in a dialogue as a living rejoinder within it; the word is shaped in dialogic interaction with an alien word that is already in the object. A word forms a concept of its own object in a dialogic way.⁴²

When we select words in the process of constructing an utterance, we by no means always take them from the system of language in their neutral, *dictionary* form. We usually take them from *other utterances* [author's emphasis], and mainly from utterances that are kindred to ours in genre, that is, in theme, composition, or style... Each utterance is filled with echoes and reverberations of other utterances to which it is related by the communality of the sphere of speech communication. ... Each utterance refutes, affirms, supplements, and relies on the others, presupposes them to be known, and somehow takes them into account.⁴³

[Dialogism] is a mixture of two social languages within the limits of a single utterance, an encounter, within the arena of an utterance, between two different linguistic consciousnesses, separated from one another by an epoch, by social differentiation, or by some other factor.⁴⁴

Bakhtin termed this mixture of expressive “voices” in discourse *polyphony* (“many-voicedness”), the property of expression to already include, subsume, and presuppose “others’ words” as markers of the inter-individual and intersubjective ground of expression. In Bakhtin’s terms, anything one says is always already hybrid and *heteroglot* (formed with “other[s]’ speech”): both spoken and formal written genres always have otherness and others built-in.

In Bakhtin’s key insight, the minimal unit of expression and meaning is not an isolated phrase but the “dialogized utterance,” an expression in a living context that necessarily emerges from a background of prior statements and anticipates other responses in a Janus-like structure of past and future, self and others. Bakhtin discovered another built-in feature of expression--*addressability* and *answerability*: all cultural expressions are simultaneously a response to, and an anticipation of, ongoing dialogic meaning. Meaningful expression in any form assumes one or many addressees, who are also simultaneously responders, social participants in ongoing intersubjective meaning-making:

The word in living conversation is directly, blatantly, oriented toward a future answer-word: it provokes an answer, anticipates it and structures itself in the answer's direction. Forming itself in an atmosphere of the already spoken, the word is at the same time determined by that which has not yet been said but which is needed and in fact anticipated by the answering word. Such is the situation with any living dialogue.⁴⁵

The dialogic principle thus extends beyond local situations of expression to the continuum of reinterpretations in cultural forms through historical time (as also recognized by Peirce). Scaled up to the level of cultural genres, texts, and media artefacts, dialogism becomes *intertextuality* and *intermediality*, that is, networks of expressions, prototypical works, encyclopedic cross-references, and genre types that presuppose and entail each other and provide the links for meanings in new combinatorial nodes.⁴⁶ “Intertextuality” is often invoked less usefully for describing “borrowing,” “sources” and “influences” in recognizable recurrences (features which are, again, surface indicators of deeper, presupposed relations), but *intertextuality* and *intermediality* have far greater heuristic value for uncovering generative, dialogic processes.

The dialogic principle has also been productively developed for focused empirical research in sociolinguistics, discourse studies, and pragmatics, yielding a wealth of evidence confirming Bakhtin's central hypothesis.⁴⁷ Deborah Tannen has done extensive research on "dialogicality" in everyday conversations: we always find repetition of phrases, reporting and embedding others' speech, and ongoing intertextuality (speakers in conversations presupposing and referencing prior expressions outside the current frame of conversation).⁴⁸ This kind of dialogism is a "spontaneous feature" in live discourse, and not (only) a feature of self-conscious literary forms. For conversations to be what we experience them to be, we necessarily "remix" others' words and phrases with our own to establish conversational continuities, mark social relations among speakers, negotiate meanings, and make responses that are open to further responses.

Expanding the implications of dialogism further, recent research in pragmatics and social cognition has uncovered multiple dimensions of intersubjectivity and collective cognition constituted through the dialogic principles of language: language allows us to know other(s') minds as co-agents in the collective cognition of social life and to locate the meanings we use in social, not private, contexts.⁴⁹ Enacted in cultural genres and forms of media, dialogism also underlies the *recontextualization* of received discourses and expressions for developing new meanings in specific communities of reception.⁵⁰

The conclusions from research in multiple fields show that the dialogic principle is a built-in constitutive feature already in place *before* any specific language use or expression in other symbolic forms is possible. An individual person's meanings, cognition, and expression require and presuppose *others*, those *not-self*, a community of others: multiple others' expressions are necessary as structured "inputs" that initiate and perpetuate participation as an inter-subject with other members of a cultural community.⁵¹ In Lotman's description, "the *dialogic situation* [author's emphasis], precedes both real dialogue and even the existence of a language in which to conduct it: the semiotic situation precedes the instruments of semiosis."⁵² The dialogic principle is thus not an *effect* or perceptible *property* of discourse and symbolic expression, but is a *precondition* for its possibility *per se*.

When we begin with the fact of language, discourse, and all symbolic systems as intersubjective, inter-individual, collective, and other-implicated, rather than with the Cartesian problem of how meanings happen in an individual mind, we find that the dialogic principle and

semiosis, as enacted and activated by people in cultural communities, are the “sources” of remixes, hybrid recombinations, and appropriations. Generative dialogism provides the environment, milieu, or medium of *situated meaning transformations*. The dialogic principle is the generative engine of culture, and all living cultures are always already dialogic. Dialogic hybridization is thus the default (always on) state of culture. There is no “there” there outside the dialogic network.

Generativity and Recursion

Generative and cognitive linguistics provide important models for explaining productivity and combinatoriality in language extensible to other symbolic systems. Any speaker in any language community can generate an unlimited (infinite) set of new expressions from the limited (finite) resources of the language.⁵³ This principle is known as “discrete infinity,” the capacity for infinite (unlimited, open-ended) expression from finite means. Language is composed of formally discrete constituents (words/lexicon and grammatical structures), but the possibilities for new combinations of words in new statements expressing new concepts in new contexts are unlimited. This productivity/creativity is possible because language is system of *symbolic functions* (words and phrases as tokens for abstract and generalizable concepts, not signals corresponding to unique entities) and *rules for syntactic combinatoriality*. Seeking ever simpler unifying principles for language, Noam Chomsky most recently uses the term “unbounded *Merge*” as the unifying operation for rule-governed combinatoriality:⁵⁴

In its most elementary form, a generative system is based on an operation that takes structures already formed and combines them into a new structure. Call it *Merge*. Operating without bounds, *Merge* yields a discrete infinity of structured expressions.⁵⁵

Parallel principles for combining structures within structures are found in all symbolic systems, though not with a formal one-to-one mapping of features from language architectures to those in other systems.⁵⁶

The ability to generate unlimited sequences of rule-governed combinatorial structures depends on recursion, which is now widely recognized as an essential cognitive capacity that unites language, memory, and all other forms of symbolic cognition and expression.⁵⁷ The

terms “recursion,” “recursive function,” and “recursive process/procedure” are used in several ways across the disciplines. In mathematics and algorithm theory, recursion is a logical design for looping a *function* (a software routine or process) by calling (*invoking*) itself to use its outputs as new inputs, repeating automatically *n* number of times, until the procedure terminates with a logical output. Recursive routines are built into every software program we use (and all those running behind the scenes). Feedback loops in self-governing systems (e.g., thermostats, GPS systems, autopilot controls) are other implementations of recursive processes that we encounter every day. In our context, we will use the concept of recursion in the specific senses developed in cognitive linguistics. Language, other sign systems, and memory in human cognition depend on multiple kinds of recursion, both recursive processes and recursively applied rules.

Recent research in linguistics and cognitive science focuses extensively on recursion as a (if not *the*) defining feature of language in its architecture for enabling us to produce unlimited new combinations of statements of any length and for creating unlimited larger patterns of connected discourse (with whatever model of generativity, productivity, or creativity in language one assumes).⁵⁸ This productive field of research provides valuable analytical and empirical methods that can be extended to the study of other symbolic systems in culture. As forms of rule-governed compositions, all genres of remix and hybrid combinatorial works implement recursive processes and recursively applied rules from the larger symbolic systems of which they are part.

Pinker and Jackendoff sum up an accepted view in linguistics: “Recursion consists of embedding a constituent in a constituent of the same type, for example a relative clause inside a relative clause.”⁵⁹ For example, any English speaker can nest phrases like “the boy who loved the girl who lived in a house that had a garden that had rabbits that ate the carrots that the girl planted that...” in open-ended grammatical structures limited only by the speech situation. (This means there can be no “longest sentence,” “longest narrative,” or “longest song” since we can always loop in another constituent of like form.) Likewise, any musician competent in a musical genre can expand a composition or performance by embedding new phrases of like form within the structures of a composition in unlimited ways. (As fans may either love or loathe, a jam band can play for hours.) From this underlying feature of recursively open combinatoriality in language, we can extrapolate a generalizable rule for expression in other symbolic forms: *in the compositional structure of a*

form, embed a constituent (structure) within a constituent (structure) of the same type, repeat n number of times as expressive needs require. As we shall see, this generative rule describes recursive constituent embedding, nesting, or looping implemented in the structures of many cultural forms.

The recursive processes that enable symbolic cognition and rule-governed combinatoriality are also the key processes behind dialogism. A syntactic recursive procedure explains how and why embedded combinations must always follow a rule for the “fit” of units within an expression (a structure fits a “slot,” a placeholder, within a like structure). However, a recursive procedure does not specify the *source* of the “constituent of the same type” in open combinatorial structures. The generative processes enable speakers/writers to combine units expressed as their “own” phrases within spontaneous discourse and/or as units representing embedded allusions, references, or quotations from other expression, recent or past, combined in the appropriate structural slots. Dialogism thus happens at an interface between the underlying formal generative-recursive processes and the specific symbolic forms of cultural genres and their situated contexts of social use.

Since the structures for assuming, referencing, and quoting others’ and prior expression are built-in, constitutive features of language and discourse as our primary intersubjective-symbolic system, then it should be intuitively clear how these recursive and quotational embedding functions are distributed in multiple levels through other equally dialogic symbolic systems like music, written genres, film, and the visual arts. Consider the following ways that recursive, dialogic constituent embedding appears in forms we see every day: embedding “others’ expression” as quotations, citations, or references in conversation and written genres (first-order dialogism), inserting appropriated “sources” in a genre of assemblage or collage within the genre’s compositional structures, using quoted or sampled musical “constituent” units combined in the structures of a musical piece (e.g., as foregrounded in compositions developed with software enabled re-recording methods). These are all syntactically and semantically valid implementations of recursive embedding within the combinatorial structures of the respective forms. We can generate unlimited combinations of meaning structures through the formal processes of syntactic recursion, and the dialogic principle explains what drives or motivates necessarily combinatorial expressions as the *situated, ongoing meanings* produced by members of a culture.⁶⁰

Recursion is thus a unifying principle for analyses of symbolic thought and expression in multiple disciplines: Peirce's model of semiosis (and recent extrapolations), Bakhtin's dialogic principle, models for unlimited, rule-governed combinatoriality in linguistics, and models for social cognition and collective memory in the cognitive sciences. Recursion explains *how* we embed and combine units of meaning in language and other symbolic forms (the underlying syntactic, semantic, and semiotic dimensions). Dialogism explains *why* embedding "other(s)" expression" is necessary in all forms of discourse and in the continuum of cultural genres over time (the pragmatic, social, and situated contextual dimensions). Dialogism, semiosis, and recursion form a powerful set of concepts and testable hypotheses that account for collective, intersubjective, and generative processes of meaning-making in cultural expressions, processes that extend into longer continuums of cultural time, history, and ongoing reinterpretation of cultural artefacts. The deep remix begins in these intersubjective and collective symbolic processes and cascades out in all the specific expressive forms that we experience in a culture.

Collective Meaning Resources and the Cultural Encyclopedia

Our symbolic systems and media implement different component structures for combinatorial meaning (e.g., language and discourse units, structures for image genres, and multimodal units in time-based media like music and film), and these systems function with different, though often analogous, *parallel architectures* for combining components at different levels or layers.⁶¹ There are two primary levels of meaning formation that can become intuitively clear when we talk about what something means. These levels are known as the *lexicon* (dictionary-level units, vocabulary, any system of minimal constituents and meanings) and the *encyclopedia* (multiple levels of conceptual organization, background knowledge, and symbolic associations, including the type categories and codes for individual genres).⁶² We can isolate words and phrases combined in the syntax and discourse structures in speech and writing, and, by analogy, discuss an artist's or musician's "vocabulary" (minimal combinatorial "lexical" units like a dictionary list) used in combinatorial structures. But what any specific composition *means* in a culture (for example, a text, the combined lyrical and musical form of a song, or the components of a visual artwork) isn't derived by adding up dictionary-like look-ups for the components. Rather, we create artefactual meanings in patterns generated

from organized symbolic relations and shared knowledge at another level—networks of meaning that function like a cultural encyclopedia distributed through, and implementable across, all symbolic forms, genres, and media. This parallel architecture in meaning making is summarized in the following table:

Levels in the Parallel Architecture of Generative Combinatorality	
Lexicon: Minimal constituents, vocabulary units of meaning composed in the grammar/syntax of a symbolic system	Combination of constituent units in rule-governed, unlimited recursive structures motivated in dialogic contexts. Visible in embeddable units, invisible as expressions presupposed by a community.
Encyclopedia: System of culturally organized meanings and values, codes, genres, symbolic associations	Combination and hybridization of genres, types, categories, and concepts in network-like reconfigurable nodes of symbolic relations. How the contents of a cultural archive are organized into categories of meaning.

For example, the *Mona Lisa* is, on one level, an instance of an Italian Renaissance commissioned portrait with its genre-specific vocabulary of minimal units, but what the painting *means* (in all the senses of meaning in a culture) comes only through the way interpreters in cultural communities access encyclopedic relations of symbolic value and accrued significance “outside” the painting. What the *Mona Lisa* means for us is what we can express in a network of interpretants accessible in a shared cultural encyclopedia (some major interpretants of which are other *paintings* that reference, presuppose, parody, or riff on the historical exemplar!).

Research in cognitive semantics and semiotics shows that we make meaning by multiplexing levels of *conceptual* combinatorial processes: (1) we move up and down nested levels of conceptual generalization or abstraction (termed semantic frames or schemes), (2) we combine, merge, or blend concepts to form new ones (as in metaphors and hybrid genres), and (3) we interpret specific instances (tokens) of cultural genres (types) through shared codes and encyclopedic knowledge (genres as types with collectively understood rules and codes and a shared cultural knowledge base of prototypes—famous versions, exemplars—of a type).⁶³ Distinguishing the functions of these symbolic-conceptual processes in a parallel architecture allows us to present a fuller description of what we do

in active “online” real-time interpretation (Peirce’s concept of *semiosis* as opening onto networks of *interpretants* in symbolic cognition) using collective, intersubjective meaning resources. Symbolic structures enable us to generate meanings by combining concepts that are not present in any specific instance, but supplied by engaging multiple cognitive levels in the parallel architectures of symbolic functions.

For an everyday example, most people following popular music will easily be able to express statements at multiple levels of meaning by invoking concepts in nested type categories—often mapped out in a hierarchical tree structure—that frame a pop song *as* a pop song in contexts of meaning (read “=>” as “is an instance of”):

Jay-Z song (+/- other associates) =>
celebrity rap star song in relation to others in the genre =>
rap/hip hop genre types and subtypes and symbolic values =>
commercial pop song and music industry market categories =>
hip hop positioned in celebrity culture and among other popular culture
artefacts (video, TV, etc.) =>
global popular culture...

The conceptual frames depend on a cultural (and subcultural) encyclopedia of collective knowledge, values, and codes that provide the collective ground for interpretable meanings. Someone unfamiliar with hip hop music genres and recent pop culture will not get what is going on in a Jay-Z song, but the musical codes and background knowledge are publically available to learn. Similarly, a painting by Andy Warhol is not interpretable without some familiarity with the genre categories of modern art, some background in the vocabularies of representation and the presupposed cultural encyclopedia, and knowledge of the dialogic situation in the artworld that Warhol participated in. And, of course, since the dialogic continuum is ongoing, what a Warhol painting can mean today is part of an accruing socially accessible encyclopedia of symbolic associations and values (the reception history of an artist or work), forming networks of meaning that were unanticipated in the 1960s but are now part the dialogic situation that frames our interpretations.

While all societies have regulating ideologies and social structures that create unequal access to knowledge and symbolic resources, the cognitive abilities for meaning-generation and expression are, at all levels of this parallel architecture, intersubjective, interindividual, collective, and necessary, and vary only in individual competencies.

Remix+

Mobilizing these conceptual resources, we can redescribe remix, appropriation, and hybrid works as genre implementations of the underlying generative, dialogic, recursive principles in the symbolic systems of a culture independent of any instantiation in a specific tangible medium. Remix as a form of ongoing dialogism is *Remix+*, not bundles of repetitions, plagiarisms, copies, or technically generated clones, but value-add interpretive nodes (a time and meaning increment, +) formed by necessary generative, combinatorial processes in the dialogic continuum of culture. Remix and hybrid works are articulations in forms that emerge from *necessary*, normative principles: (1) implementing generative principles for open combinatoriality of constituent units within recursive rule-governed meaning systems, (2) the intersubjective, interindividual, and other-implicated grounds of meaning and expression as modelled in semiosis and dialogism as parallel generative processes, (3) the dialogic ground for appropriating and quoting other(s') expression in ongoing interpretations of a culture's artefacts through an intertextual/intermedial collective encyclopedia, and (4) generative processes that encode and externalize *future-projecting collective memory* in structures of meaning destined for reuse in the continuum of cultural expression.

These "deep remix" principles also explain why all cultures are experienced as incomplete and in need of continual additions, supplements, and renewal of meaning (else why the proliferation of new expressions and works?).⁶⁴ Generative semiosis manifests itself in all the ways that cultural members (meaning participants, semiotic agents) develop sequences of additive, accruing meanings (interpretants mapping new, additional routes through a culture's symbolic networks) in expressions motivated by never-finalized completion and renewal.⁶⁵ *Remix+* means that cultural expression is unfinalizable and always future-oriented, as Bakhtin recognized:

Nothing conclusive has yet taken place in the world, the ultimate word of the world and about the world has not yet been spoken, the world is open and free, everything is still in the future and will always be in the future.⁶⁶

Remix+ and Dialogism in Cultural Genres: Meaning Generation in Music

There are many ways we can use these concepts and methods heuristically for discovering the underlying principles of remix and hybrid works and using these forms as interfaces for disclosing the normative principles at work in all forms of expression. The contentious issues in high-profile cases of music sampling and appropriation art have been well-treated by many scholars,⁶⁷ but current scholarship remains largely disconnected from knowledge about the necessary generative, recursive, and dialogic principles of meaning-making and expression embodied in artefacts. Although the high-profile cases need to be reinterpreted through the concepts outlined here, they are now over-determined in the discourse and not as useful as paradigms of the normative meaning-making processes. I will show how we can mobilize these ideas for analyzing “mainstream” examples in music and visual art to uncover the normative, generative, combinatorial, dialogic principles underlying all cultural genres.

Miles Davis’s *Kind of Blue* (1959) is the most commented on jazz album in history, forming a dense node of cultural meanings and values expressed both in interpretive discourse and in hundreds of appropriations and elaborations by many other musicians in the dialogic continuum of contemporary music.⁶⁸ The album is an interface to a dialogic moment of major reinterpretations of the cumulative, inherited musical encyclopedia (African American blues roots, jazz and bebop reinterpretations, and music theory in the European-American classical tradition). Combining the vocabularies and symbolic values of African and European traditions, Davis positioned the hybrid improvisational form of the music in the dialogic situation of the 1950s where the musical forms were understood to symbolically encode ethnic-cultural identity and values. Creating this specific interpretive node as a hybrid form that combined conflicting registers in the encyclopedic meaning system meant adding value to both identity terms, African and American, as many other jazz musicians also affirmed.

Jazz improvisation is highly structured, difficult to master, and involves combinations of learned and continually practiced model forms and phrases that become structures in a generative grammar for “composing in the moment.” Musical improvisation is a direct analog of the “discrete infinity” through generative combinatoriality studied in language.⁶⁹ The *Kind of Blue* sessions are unrehearsed ensemble

improvisations done in one take, developed in real-time from musical “sketches” of the formal structures. The songs are thus simultaneously compositions and performances, snapshots of expressive, open rule-governed combinatoriality in the grammar of the musical forms.⁷⁰ In each bar of the recorded performances, we can hear the results of the generative recursive processes used to combine rhythms, tones, phrases, harmonization, and styles from a common vocabulary selected for contextually specific functions. In improvisation, the generative combinatorial structure provides the spaces for *quotations from the future*, the about-to-be but not-yet-said, in dialog with the live conversation of performance and with the larger traditions internalized by the musicians. Symbolic form in time enables structured anticipations: projected future expressions are already in the present moment.

Building on post-bebop developments in jazz, Davis experimented with an additional interpretive concept: the generative potential of improvising through types of scales fundamental to classical music theory (scale *modes*). The “grammar” for each tune on *Kind of Blue* was based on a blues-rooted structure, but with a novel way to play improvised solos by following a classical scale rather than the blues-to-bebop tradition of developing freer-form extempore melodies following complex chord changes.⁷¹ Davis commented that this approach opened “infinite possibilities” for new expression within the formal constraints, and the musicians refocused on the values of tone, timbre, and “space” within the form.⁷²

All Blues, the fourth track on the album, channels the values of the deep blues tradition and reinterprets the canonical blues chord progression through a modal scale and in 6/8 time.⁷³ A musicological description reveals how the *formal* (grammatical) combinations were motivated by the symbolic value of combining *encyclopedic* meanings. The lexicon and grammar of the blues are inextricably connected to the larger cultural encyclopedia of meanings and values associated with the form. Iconic songs by Robert Johnson and others in the Delta blues diaspora encode a form stabilized in a template of chord progressions, a form that provided the generative structure for multiple combinatorial variations in jazz and further extensions in R&B and rock genres.⁷⁴

In *All Blues*, Davis appropriates and reinterprets a distinctive feature in the blues tradition: the “blues shuffle” pattern defined by playing notes from the 5th to the 6th and flat 7th scale degrees of a chord in a rhythmic ascending and descending riff on the bass notes (a pattern with variations used in countless blues, jazz, boogie, soul, and rock styles).

Davis takes this Delta roots pattern known by all jazz musicians for a 12/32 bar blues form, slows the tempo, reharmonizes the scale riff, and prescribes the Mixolydian scale mode for the improvised solos (a scale with notes we “feel” as minor). The musicians performed new, unrehearsed, improvised solos using the modal scale over the reinterpreted blues chord progression, performances that have been widely studied, analyzed, and debated for understanding the astonishing skill demanded in these reinterpretations of a musical form. All the levels of generativity, recursive combinatoriality, dialogism, and encyclopedic encoding are openly engaged. The compositions on *Kind of Blue* represent interpretive remixes on multiple levels. They are hybrid forms that affirm the generativity of the musical structures (jazz = unlimited creativity) in the dialogic situation of the culture and also renew the music’s meanings in the larger cultural encyclopedia for both African American and European traditions.

Turning to interpretive remix genres based on sampling, quotation, and encyclopedic cross-referencing in contemporary musical forms, we find that the *technical* means for combinatoriality can be used to disclose the underlying recursive, generative, dialogic processes of the expressive forms. The cultural, historical, and technical roots of contemporary remix in Jamaican dub, techno, and DJ and hip hop cultures have been widely studied, and the creative functions of sampling, quoting, and referencing in popular music are now commonplace knowledge.⁷⁵ Sample and source hunting have now been converted into a fan-driven marketing device for music sales on websites like whosampled.com (and accompanying mobile app), which claims to “explore the DNA of music” through users’ identifications of “direct connections” among a song’s samples, remixes, and covers.⁷⁶

Rather than analyzing an example here, I invite readers to make any selection of sample-based songs to use as an *interface* to the shared combinatorial and dialogic processes that made the songs possible. As an interface to, and implementation of, intersubjective meaning processes, a remix work can be used to reveal how the recombinations and embedded constituent musical vocabulary units (facilitated in automated software procedures for digital media) are motivated not by the technology but by the *dialogic contexts* of the musical form and the situations of production and reception in the genre’s reception communities where the meaning is made.

Composing a work in explicit remix and appropriation genres involves using the combinatorial processes for the dialogic functions of

the genre: (1) selecting syntactically possible units in contexts of prior symbolic relations and encyclopedic values (this form of selection is itself an interpretive process of linking token to typed meaning), and (2) recontextualizing the selected unit by embedding it in the compositional structure of the new expression that creates additional encyclopedic meaning relations. On the formal level, remix in compositional structures uses the recursive combinatorial function for embedding constituent phrases as recognizable *dialogically positioned* units of “other’s” expression (quotations of prior and contemporaneous expressions with built-in addressivity and answerability). For both the composer and audiences in the cultural community, the selections of combinatorial units are motivated by how they can function dialogically in a new or different contexts of meanings associated at the encyclopedic level, not as self-same copies or repetitions of the already expressed. The recontextualized units work as synecdoches (parts for the whole), not only for other songs and artists but as tokens for whole genres, styles, traditions, concepts, and cultural values. The remix work reveals how the dialogic process engages our encyclopedic competencies by foregrounding subsets of the musical-cultural lexicon in the combinatorial structures, sets of embedded meaning units symbolically linked to a shared cultural encyclopedia of musical meanings, values, and signature, prototypical sounds.

Daft Punk’s *Random Access Memories (RAM)* (2013) is a compendium of orchestrated combinatoriality and recontextualization, a paradigm of creative *Remix+* through the generative structures of the musical genres and the affordances of the recording studio. For *RAM*, the musicians, Guy-Manuel de Homem-Christo and Thomas Bangalter, known as “the Robots” in the music world from their techno and voice-processed sounds, used all the resources of state-of-the-art audio technology to recover and mix the symbolic *sounds* of music genre elements in prototypical analog studio recordings from the 1970s-80s.⁷⁷ Working collaboratively with many other musicians and audio engineers at multiple recording locations, they mixed recorded instrument tracks (notably funky rhythm guitar and bass), live recordings of drum tracks, analog modular synthesizers, Vocoder programming, and live orchestra recordings.⁷⁸ The integration of analog sound and digital production is seamless, even to the point of knowledgeable listeners being unable to distinguish software-simulated analog sounds from those recorded from instruments.⁷⁹

In concept and production, the album represents a deep remix of the symbolic features of sounds now standardized in digital samples

(beats, bass grooves, riffs, percussion) but detached from how they were made. The musicians *de-sampled* sampling, reverse engineering the library of prototypical sampled sounds (now available as libraries of digital clones and clichés on any laptop) by re-producing and re-capturing the symbolic audio properties of the sounds that made them so *sampleable* as genre synecdoches in the first place. As Bangalter explains,

The idea was really having this desire for live drums, as well as questioning, really, why and what is the magic in samples? Why for the last 20 years have producers and musicians been extracting these little snippets of audio from vinyl records? What kind of magic did it contain?⁸⁰

The “magic” was in the symbolic properties of the musical sound elements now standardized as recomposable, replicable, sampled sound units. The musicians use the technical means in recording and audio production to expose the symbolic properties of combinable sounds now taken for granted as “in the mix,” sounds that were sampled because they encoded specific sound values from specific instruments and audio technologies in their time and place.⁸¹ In effect, Daft Punk deblackboxed remix to reveal how embeddable constituent units are used symbolically in the combinatorial processes of the forms.

In *RAM*, we can observe how a recombinatorial mix—as an interpretive, dialogic process, not simply a technical product—is a reactivation of symbolic forms in a continuum of value-add interpretation, new expression as *Remix+*. Without using explicit, quotational sampling, Daft Punk produced an interpretive remix of styles and genres by sonic tokenization, re-producing the symbolic values of constituent elements, in a large network of encyclopedic referencing and allusion. The dialogic network of *RAM* extends to major concept album collaborative productions like the Beatles’ *White Album*, Michael Jackson’s Quincy Jones-produced *Thriller*, Pink Floyd’s *The Dark Side of the Moon*, and Fleetwood Mac’s *Rumours*. You don’t need to directly sample segments from the Beatles’ “A Day in the Life” or a specific James Brown funk groove to invoke these works and their values in the collective cultural encyclopedia. *RAM* reveals the generative dialogic, combinatorial engine at work in a large collective, distributed network of cultural agents, recent and past. Fully aware of the dialogic foundations of music culture and their role as encyclopedic interpreters projecting musical expressions into

the future, Daft Punk set out “to make music that others might one day sample.”⁸²

Combinatoriality in Visual Art

Remix in all its forms is an accepted *fact*, not a *problem*, in the contemporary artworld. Art history is now widely accepted as a history of reinterpretations, appropriations, cross references, dialogic pre-suppositions, and recontextualizations. Although a canonical topic of postmodern theory, appropriation and hybrid genres are not *products* or *effects* of postmodernism, but the exposure of these forms in critical debates has opened up the dialogic and combinatorial processes behind all forms.⁸³ The wider cultural and ideological significance of art forms developed with collage, montage, appropriation, mass media sources, and found materials continues to be a major theme in contemporary art and cultural hybridity debates.⁸⁴ But the underlying generative, dialogic creative principles for hybrid forms in the symbolic structures of visual art have not yet been explained for wider use in current debates. Artworks based on appropriation and mixed sources are still too-often approached as mechanical patchworks of isolated atomic units from other artefacts of expression, not as rule-governed genre implementations of *Remix+*, which necessarily emerge from the combinatorial processes of symbolic forms generated in dialogic situations. Parallel with other symbolic forms, new combinatorial structures from the generative processes in visual art are motivated by the dialogic situations within which the artefacts become new or additional nodal positions for interpretive routes in the encyclopedic network.

As in the discussion of remix in music genres above, I invite readers to use the conceptual resources developed here to investigate works by artists that can be used as interfaces to the generative and collective meaning processes of their symbolic forms. For example, we can map out a dialogic continuum in genre hybridization, recontextualization, and interpretive appropriation in the works of Robert Rauschenberg and Andy Warhol (from the 1950s-1980s) and Shepard Fairey and contemporary street artists (from the 1990s to the present), a dialogic continuum that continues in most contemporary art.⁸⁵ A Google image search on these artists will provide many examples that can be studied and compared for further research. Working with well-established concepts in their artistic communities of practice, these artists developed exemplary ways to follow deep remix principles, working intuitively and

heuristically through the generative, recursive combinatorial rules for the symbolic systems in art genres to create hybrid forms as nodes in new networks of meaning.

Rauschenberg's lifelong practice illustrates how the generative principles described in Chomsky's "unbounded Merge," unlimited semiosis, and dialogism can be expanded to explain the generative, recursive combinatorial principles underlying the symbolic structures of visual art. In the late 1950s and early 1960s, Rauschenberg discovered and exploited a generative principle implicit in the grammar of modern art: with the redefinition of painting in modernism taken for granted, the constituent combinable vocabulary units in the form of a composition could come from any source or medium because combinatorial rules provide the "slots" or placeholders for embedding units, but do not determine the source, type, or medium for what can become meaningfully combined. Parallel with Warhol's appropriation of photographic reproduction for painting, Rauschenberg saw that image constituents in a composition—embeddable units within other units--can come from any source--reproduced photographs from the mass media, magazine pages, and photo reproductions of other art works.⁸⁶ Photomechanical screen-printing techniques allow multiple reuses of constituent image units in combinations within and across compositions in serial form, effectively erasing the boundaries between painting and printmaking and uniting them as image making technologies for appropriating image units from both the museum archive of art history and from every form of mass media imagery in popular culture.⁸⁷ Graphic and painterly marks or gestures can be quotational (from other sources) or directly imposed on a canvas or other material substrate. A combinatorial unit in a structure can also be a material object or thing--not representations of things but found objects from the city that function as synecdoches of the dense, accumulated meanings of urban experience.

To name the new hybrid form that emerged intuitively in the generative process, Rauschenberg called his hybrid combinations "combines," that is, combinatorial meaning platforms that simultaneously engage the grammar and vocabulary for two-dimensional genres and media (painting, printmaking, drawing, photography, collage) and three-dimensional meaning structures (sculpture, assemblage, found objects). The combined grammars and vocabularies of the forms expanded contextual possibilities and opened up further networks of meaning in the cultural encyclopedia. In many ways, all contemporary art is post-Rauschenberg in the sense of being motivated by exploring all possibilities

of hybrid combinatoriality in the generative logic of a form and ways of using the combinable units as material synecdoches for configuring other, new, or additional encyclopedic meanings in an artist's dialogic situation.

For a moving global index of remix, hybridity, and dialogism in contemporary visual culture, street art exemplifies the generative combinatorial "unlimited creativity" logic of ever-renewable expression.⁸⁸ Shepard Fairey and other contemporary street artists around the world take the always already hybrid context of art making and visual culture for granted and work in the expanded dialogic environment of city streets with the symbolic structures of urban visual space.⁸⁹ Since source material is everywhere, the dialogic situations of street art in urban locations motivate the interpretive remixes. Street artists use the city as a visual dub studio, extending the combinatorial principles from multiple image and graphic genres to expand appropriation, remix, and hybridity in every direction: image sources, contemporary and historical styles, local and global cultural references, remixed for contexts and forms never anticipated in earlier postmodern arguments. Street art also assumes a foundational dialogism in which each new act of making a work and inserting it into a street context is a response, a reply, an engagement with prior works and the ongoing debate about the public visual spaces of a city. As dialog-in-progress, it anticipates a response, public discourse, commentary, and new, additional works of *Remix+*. The city is seen as a living historical palimpsest open for new inscription, re-write culture in practice. Like jazz, street art opens onto a collaborative, participatory generative process, a dialogic engine for intuitive improvisations always open to hybridization in ever renewable future-directed expression.

Conclusion

We have seen how the principles of generative dialogism and recursive, rule-governed unlimited combinatoriality are necessary and normative in all symbolic systems and generate the material, technically mediated forms of expression used in a culture. Whether we consider combinatorial elements at the level of explicitly embedded quotational constituents (the lexicon) or in the deep remix of symbolic resources whose meaning is contingent on networks of presupposed prototypical works, genres, and styles with multiple nodal relations (the cultural encyclopedia), all levels of combinatoriality are equally generated from necessary and normative combinatorial functions motivated by the

dialogic situations of communities in time and place. All meaning systems from language to multimedia are based on generative, intersubjective and other-implicated processes that precede any specific material-technical implementation.

So, yes, we can't *help* but remix in forms of *Remix+*, regardless of the historical state of technical mediation. Our current technologies enable us to implement and automate *pre-existing symbolic* functions that are in place before using technical tools for recombining tokens of expression. Since we're born into a generative symbolic continuum already in progress, we always dialogically, collectively "quote ourselves" to capture prior states of meaning as inputs for new interpretations in new contexts in materially re-implementable, remixable ways. In Lotman's apt definition, "culture [is] the nonhereditary memory of the community"⁹⁰ materialized in the continuum of encoded artefacts of expression. Cultural artefacts in all media bundle the functions of meaning-making into durable externalizations of intersubjective and collective cognitive processes that enable the renewable continuum of human cultures in the sequences of their historically, dialogically situated "rewritable" forms.⁹¹ Instead of starting from the assumption that the genre of remix with explicit quotations is a special case (troubling the ideologies of the autonomy of the work and the artist/author) that requires justification, explanation, or special pleading, remix can do much more important cultural work when redescribed as *Remix+*, an implementation of the normative generative, intersubjective, and collective meaning-making processes underlying all forms of expression in any medium.

The evidence from the knowledge base outlined here allows us to change the starting point in descriptions of remix and hybrid expressions "in tangible form." In a Copernican reorientation of the point of observation, if we recenter the conversation by starting with the necessary intersubjective and interindividual principles as defined in generative, recursive combinatoriality, unlimited meaning generation (semiosis), and dialogism, then the material form of an expression appears as a moment of orchestrated combinatoriality in the ongoing interpretive, collective, meaning-making processes that necessarily precede and follow it. This new orientation can counter misrecognitions about ordinary authorship and proprietary artefacts that sustain copyright law and confuse the popular understanding of remix as something outside the normative and necessary structures of meaning making in ordinary, daily expression.

The new point of view reveals that any work produced and received in a culture, when decrypted from the copyright ontology force

field of assignable property, is, necessarily, a materialized symbolic structure encoding an interpretive dialogic pattern of combinatorial units, meanings, values, and ideas that came from somewhere and are on their way to somewhere else. In the context of debates over copyright reform for the interests of common culture, this knowledge base provides important scientific support for stronger fair use practices that counter the ideologies for “long and strong copyright.”⁹² Legal and economic definitions of cultural property must be re-synced with these fundamental facts of collective symbolic cognition, meaning-making, and mediated cultural expression.

I propose this outline for a new interdisciplinary model and reorientation of starting points as an open-ended research program that can be tested and developed in our research communities for remix studies and for the generative principles of creativity more broadly. When deblackboxed and reverse engineered with the conceptual models outlined here, remix and hybrid works have much more to tell us, not as reified products but as *interfaces* to the living, generative, and unfinalizable meaning-making processes that enable cultures to *be* cultures.

Notes

¹ “Remix” as a technical artefact and as a more general metaphor is widely used, notably: Kirby Ferguson, “Everything Is a Remix (Parts 1-4),” *Everything Is a Remix*, 2012 2010, <http://everythingisaremix.info>; Kirby Ferguson, *Everything Is a Remix (Parts 1-4)*, Web video, 2012, <http://vimeo.com/kirbyferguson>; Brett Gaylor, *Rip: A Remix Manifesto*, DVD (The Disinformation Company, 2009); Jonathan Letham, “The Ecstasy of Influence: A Plagiarism,” *Harper’s Magazine*, 2007; Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy* (New York, NY: Penguin Press, 2008).

² These topics are discussed from different disciplinary perspectives in Kembrew McLeod and Peter DiCola, *Creative License: The Law and Culture of Digital Sampling* (Durham, NC: Duke University Press, 2011); Kembrew McLeod and Rudolf Kuenzli, eds., *Cutting Across Media: Appropriation Art, Interventionist Collage, and Copyright Law* (Durham, NC: Duke University Press, 2011); Eduardo Navas, *Remix Theory: The Aesthetics of Sampling* (Vienna; New York: Springer, 2012); Paul D. Miller (DJ Spooky), *Rhythm Science* (Cambridge, MA: The MIT Press, 2004); Mark Amerika, *Remixthebook* (Minneapolis, MN: University of Minnesota Press, 2011); Mark Amerika, “Source Material Everywhere [[G.]Lit/ch RemiX],” in *Transgression 2.0: Media, Culture, and the Politics of a Digital Age*, ed. Ted Gornelios and David J Gunkel (New York, NY: Continuum, 2012), 57–68; Martha Woodmansee and Peter Jaszi, eds., *The Construction of Authorship: Textual Appropriation in Law and Literature* (Durham, NC: Duke University Press, 1994); Lessig, *Remix*; David Evans, ed., *Appropriation* (London & Cambridge, MA: Whitechapel & MIT Press, 2009); Douglas Crimp, “Appropriating Appropriation,” in *On the Museum’s Ruins* (Cambridge, MA: MIT Press, 1993), 126–37; Martha Buskirk, “Original Copies,” in *The Contingent Object of Contemporary Art* (Cambridge, MA: MIT Press, 2003), 59–106; Nicolas Bourriaud, *Postproduction: Culture as Screenplay: How Art Reprograms the World*, 2nd ed. (New York: Lukas & Sternberg, 2005); Lev Manovich, *Software Takes Command: Extending the Language of New Media* (London; New York: Bloomsbury Academic, 2013).

³ Many websites facilitate music sampling identifications with a “making-a-virtue-of-necessity” monetizing approach for click-through track sales; see: WhoSampled, “WhoSampled,” *WhoSampled: Music Samples, Cover Songs and Remixes*, accessed January 6, 2014, <http://www.whosampled.com/>. WhoSampled is linked to an industry ecosystem with common digital object metadata schemes and APIs for partnerships with Spotify, The Echo Nest, and other major players in digital music streaming. See <http://the.echonest.com/>.

⁴ Lev Manovich has developed the concept of “deep remixability” in software and media in *Software Takes Command*.

⁵ See Bruno Latour, “On Technical Mediation,” *Common Knowledge* 3, no. 2 (1994): 29–64; John Law, “Actor Network Theory and Material Semiotics,” in *The New Blackwell Companion to Social Theory* (Malden, MA; Oxford, UK: Wiley-Blackwell, 2009), 141–158; Régis Debray, *Transmitting Culture*, trans. Eric Rauth (New York, NY: Columbia University Press, 2000).

⁶ See Manovich, *Software Takes Command*.

⁷ The concepts and methods of the French poststructuralist tradition are well-known and treated extensively in our scholarly literature. After many years of engagement with the works of Barthes, Foucault, and Derrida, and other founders of core theory in semiotics (Peirce, Jacobson, Greimas, and Eco), I want to expand the disciplinary dialogue with important intellectual resources for explaining features of meaning-generation and symbolic expression that are unaccounted for in the main institutionalized theory base in the humanities and social sciences.

⁸ The important fields of social semiotics and multimodal discourse analysis are beyond the scope of my study here but are assumed as part of the larger research program for understanding meaning systems; see Robert Hodge and Gunther Kress, *Social Semiotics* (Ithaca, NY: Cornell University Press, 1988); Theo van Leeuwen, *Introducing Social Semiotics* (New York, NY: Routledge, 2004); and the current state of research usefully summarized in Shoshana Dreyfus, Susan Hood, and Maree Stenglin, eds., *Semiotic Margins: Meaning in Multimodalities* (London; New York: Continuum International Publishing Group, 2011).

⁹ My argument here has benefited from over 15 years of conversations with colleagues and students in the Communication, Culture, and Technology Program at Georgetown University. Too numerous to mention by name, I am grateful to everyone who has contributed to my thinking about our always unfinished interdisciplinary research and theory on the topics in this essay.

¹⁰ Our current media and symbolic systems are, of course, part of a long continuum, and not special cases of recent technology. The more we can position remix and hybrid works in longer histories of cultural production, the stronger our arguments challenging current legal definitions will be. On converging interests in many fields of research on symbolic expression and cultural artefacts, see inter alia: Terrence W. Deacon, *The Symbolic Species: The Co-Evolution of Language and the Brain* (New York, NY: W. W. Norton & Company, 1997); Theresa Schilhab, Frederik Stjernfelt, and Terrence Deacon, eds., *The Symbolic Species Evolved* (Dordrecht and New York: Springer, 2012); Michael Tomasello, *Origins of Human Communication* (Cambridge, MA: The MIT Press, 2008); Michael C. Corballis, *The Recursive Mind: The Origins of Human Language, Thought, and Civilization* (Princeton, NJ: Princeton University Press, 2011); Colin Renfrew and Chris Scarre, eds., *Cognition and Material Culture: The Archaeology of Symbolic Storage* (Cambridge, UK: McDonald Institute for

Archaeological Research, 1999); Steven J. Mithen, *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body* (Cambridge, Mass.: Harvard University Press, 2006); Lambros Malafouris and Colin Renfrew, eds., *The Cognitive Life of Things: Recasting Boundaries of the Mind* (McDonald Institute for Archaeological Research, 2010); Kathleen R. Gibson and Tim Ingold, *Tools, Language and Cognition in Human Evolution* (Cambridge, UK: Cambridge University Press, 1995); Francesco d'Errico and Lucinda Backwell, eds., *From Tools to Symbols: From Early Hominids to Modern Humans* (Johannesburg, SA: Witwatersrand University Press, 2006); W. Brian Arthur, *The Nature of Technology: What It Is and How It Evolves* (New York, NY: Free Press, 2009); Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, MA: The MIT Press, 2008).

¹¹ See Yuri M. Lotman, *Universe of the Mind: A Semiotic Theory of Culture*, trans. Ann Shukman (Bloomington, IN: Indiana University Press, 1990); Yuri Lotman, "On the Semiosphere," *Sign Systems Studies* 33, no. 1 (2005): 205–229; Peeter Torop, "Semiosphere And/as the Research Object of Semiotics of Culture," *Sign Systems Studies* 33, no. 1 (March 2005): 159–173.

¹² See Lessig, *Remix*; Siva Vaidyanathan, *Copyrights and Copywrongs: The Rise of Intellectual Property and How It Threatens Creativity* (New York, NY: New York University Press, 2001); Woodmansee and Jaszi, *The Construction of Authorship*, 1994; Letham, "The Ecstasy of Influence: A Plagiarism"; McLeod and DiCola, *Creative License*; McLeod and Kuenzli, *Cutting Across Media*.

¹³ Lawrence Lessig, *Free Culture: The Nature and Future of Creativity* (New York, NY: Penguin Press, 2005), 29.

¹⁴ Letham, "The Ecstasy of Influence: A Plagiarism." In this *tour de force*, Letham acknowledges the "sources" of arguments and examples that he has interpreted and remixed for his own essay.

¹⁵ McLeod and Kuenzli, *Cutting Across Media*, 2.

¹⁶ Quoted in Torop, "Semiosphere And/as the Research Object of Semiotics of Culture," 169.

¹⁷ See Lotman, *Universe of the Mind*; Yuri M. Lotman and B. A. Uspensky, "On the Semiotic Mechanism of Culture," *New Literary History* 9, no. 2 (Winter 1978): 211–232; Yuri M. Lotman, "The Dynamic Model of a Semiotic System," *Semiotica* 21, no. 3–4 (January 1977): 193–210.

¹⁸ See Pierre Bourdieu, *Language and Symbolic Power*, trans. John B. Thompson (Cambridge, MA: Harvard University Press, 1991), 153–154; 214–216; Pierre Bourdieu, *Practical Reason: On the Theory of Action* (Stanford, CA: Stanford University Press, 1998), 96–102; 120–122; Pierre Bourdieu, *Pascalian Meditations* (Stanford, CA: Stanford University Press, 2000), 192–193.

¹⁹ The author function in copyright and political economy contexts is well-treated in the following studies: Martha Woodmansee and Peter Jaszi, eds., *The Construction of Authorship: Textual Appropriation in Law and Literature* (Durham, NC: Duke University Press, 1994); Oren Bracha and Peter Jaszi, eds., “The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright,” *The Yale Law Journal* 118:186 (2008): 188–271; James Boyle, *Shamans, Software, and Spleens: Law and the Construction of the Information Society* (Cambridge Mass.: Harvard University Press, 1996), 119–173; Patricia Aufderheide and Peter Jaszi, *Reclaiming Fair Use: How to Put Balance Back in Copyright* (Chicago, IL: University Of Chicago Press, 2011), 16–33.

²⁰ The study of complexes of meanings, symbolic systems, and social contexts is a productive field of research at the intersection of linguistics and semiotics; see Hodge and Kress, *Social Semiotics*; Gunther Kress, *Multimodality: A Social Semiotic Approach to Contemporary Communication* (Routledge, 2009); Jay Lemke, “Multimodal Genres and Transmedia Traversals: Social Semiotics and the Political Economy of the Sign,” *Semiotica* 173, no. 1–4 (January 2009): 283–297; Kay O’Halloran and Bradley A. Smith, eds., *Multimodal Studies: Exploring Issues and Domains*, Routledge Studies in Multimodality (New York, NY: Routledge, 2014).

²¹ Most work in French and Anglophone semiotics and cultural theory develops or critiques the theory of Ferdinand de Saussure, *Course in General Linguistics*, trans. Roy Harris (Peru, IL: Open Court, 1986) (published in French in 1916). Works that expand or critique this tradition are too numerous to cite, but the following are important statements in the field: Roland Barthes, *Elements of Semiology* (New York: Hill and Wang, 1973); Barthes, *Mythologies*. Trans. Annette Lavers. (New York, NY: Farrar, Straus and Giroux, 1972); Jacques Derrida, *Of Grammatology* (Baltimore: Johns Hopkins University Press, 1997); Stuart Hall, *Representation: Cultural Representations and Signifying Practices* (London, UK; Thousand Oaks Calif.: Sage & Open University, 1997). Useful expositions of de Saussure and other semiotic traditions include Winfried Nöth, *Handbook of Semiotics* (Bloomington, IN: Indiana University Press, 1990); Thomas Sebeok, *Signs: An Introduction To Semiotics*, 2nd ed. (Toronto: University of Toronto Press, 2001); Umberto Eco, *A Theory of Semiotics* (Bloomington, IN: Indiana University Press, 1976); Mieke Bal, *On Meaning-Making: Essays in Semiotics* (Sonoma, CA: Polebridge Press, 1994); Marcel Danesi, *The Quest for Meaning: A Guide to Semiotic Theory and Practice* (Toronto, Canada: University of Toronto Press, 2007); Paul Cobley, ed., *The Routledge Companion to Semiotics* (Abingdon, UK; New York, NY: Routledge, 2009); Hodge and Kress, *Social Semiotics*.

²² Peirce's approaches have been elaborated in many fields including learning theory, cultural semiotics, linguistics, and computation and information theory, and provide a valuable heuristic model for the central questions of this essay. For other applications and extensions, see Hodge and Kress, *Social Semiotics*; Brian Rotman, *Ad Infinitum... The Ghost in Turing's Machine: Taking God Out of Mathematics and Putting the Body Back In* (Stanford, CA: Stanford University Press, 1993); Andrew Lock and Charles R. Peters, eds., *Handbook of Human Symbolic Evolution* (Oxford; New York: Oxford University Press, 1996); Eco, *A Theory of Semiotics*.

²³ I can only present a very compressed extrapolation of Peirce's key insights here on the category of signs that he termed "symbols". For introductions to working with Peirce's concepts, see Danesi, *The Quest for Meaning*; Sebeok, *Signs: An Introduction To Semiotics*; Eco, *A Theory of Semiotics*; Umberto Eco, "Peirce and the Semiotic Foundations of Openness: Signs as Texts and Texts as Signs," in *The Role of the Reader: Explorations in the Semiotics of Texts* (Bloomington: Indiana University Press, 1979), 175–199; Susan Petrilli and Augusto Ponzio, *Semiotics Unbounded: Interpretive Routes through the Open Network of Signs* (Toronto: University of Toronto Press, 2005); T. L. Short, *Peirce's Theory of Signs* (Cambridge, UK: Cambridge University Press, 2009); Copley, *The Routledge Companion to Semiotics*; Roland Posner, Klaus Robering, and Thomas A. Sebeok, eds., *Semiotik/Semiotics: A Handbook on the Sign-Theoretic Foundations of Nature and Culture*, 13.1 (Berlin and New York: Mouton De Gruyter, 1997); Thomas A. Sebeok and Marcel Danesi, *The Forms of Meaning: Modeling Systems Theory and Semiotic Analysis* (Berlin: Mouton De Gruyter, 1999). I am especially indebted to the work of Eco in his career-spanning exposition of Peirce and to Petrilli and Ponzio in their productive synthesis of Peirce and Bakhtin in *Semiotics Unbounded*.

²⁴ All references to the works of Peirce are from the standard editions: Charles Sanders Peirce, *Collected Papers of Charles Sanders Peirce, 8 Volumes*, ed. Charles Hartshorne, Paul Weiss, and A. W. Burks (Cambridge, MA: Harvard University Press, 1931) (=CP); and Charles S. Peirce, *The Essential Peirce: Selected Philosophical Writings (1867-1893)*, ed. Nathan Houser and Christian J. W. Kloesel, vol. 1 (Bloomington, IN: Indiana University Press, 1992); Charles S. Peirce, *The Essential Pierce: Selected Philosophical Writings (1893-1913)*, ed. Nathan Houser and Christian J. W. Kloesel, vol. 2 (Bloomington, IN: Indiana University Press, 1998).

²⁵ Peirce, CP, Vol. 5, p. 254.

²⁶ Peirce, CP, Vol. 8, p. 332.

²⁷ Peirce, CP, Vol. 5, p. 594.

²⁸ Peirce, CP, Vol. 2, p. 302.

²⁹ Peirce, *CP*, Vol. 4, p. 132.

³⁰ This “classic” reading of Peirce’s ideas is well-described by Eco in “Peirce and the Semiotic Foundations of Openness: Signs as Texts and Texts as Signs.”

³¹ Peirce, *CP*, Vol. 2, p. 228.

³² Peirce, *CP*, Vol. 1, p. 339.

³³ Peirce saw semiosis as being formally open and unlimited though constrained by the rules, codes, and conventions of a symbolic system, the pragmatic situations of expression, and the motivation to find conceptual conclusions. See Eco, *A Theory of Semiotics*, 66–73; Umberto Eco, “Unlimited Semeiosis and Drift: Pragmaticism vs. ‘Pragmatism,’” in *The Limits of Interpretation* (Bloomington, IN: Indiana University Press, 1990), 23–43; Jorgen Dines Johansen, *Dialogic Semiosis: An Essay on Signs and Meanings* (Bloomington, IN: Indiana University Press, 1993); Susan Petrilli, “Dialogism and Interpretation in the Study of Signs,” *Semiotica* 97, no. 1–2 (January 1993): 103–118.

³⁴ This important aspect of Peirce’s thought is more fully explored in studies by Petrilli and Ponzio: Augusto Ponzio, “Sign, Dialogue, and Alterity,” *Semiotica* 173, no. 1–4 (January 2009): 129–154; Augusto Ponzio, “Dialogic Gradation in the Logic of Interpretation: Deduction, Induction, Abduction,” *Semiotica* 2005, no. 153–1/4 (February 24, 2005): 155–173; Petrilli, “Dialogism and Interpretation in the Study of Signs”; and Petrilli and Ponzio, *Semiotics Unbounded*.

³⁵ Charles S Peirce and Victoria Welby, *Semiotic and Significs: The Correspondence Between Charles S. Peirce and Lady Victoria Welby*, ed. Charles S. Hardwick (Bloomington, IN: Indiana University Press, 1977), 195.

³⁶ Peirce, *CP*, Vol. 4, p. 551.

³⁷ Peirce, *Essential Pierce*, 2: Vol. 2, p. 241.

³⁸ Cited in Nate Chinen, “So Many Sounds, but Jazz Is the Core: Herbie Hancock Is the Emissary of an Art Form,” *The New York Times*, November 27, 2013, sec. Arts / Music, <http://www.nytimes.com/2013/12/01/arts/music/herbie-hancock-is-the-emissary-of-an-art-form.html>.

³⁹ On the dialogic improvisational structuredness of jazz, see Paul Berliner, *Thinking in Jazz: The Infinite Art of Improvisation* (Chicago: University of Chicago Press, 1994). Paul D. Miller emphasizes the collage and repetition aesthetic of jazz as a foundation of hip hop and remix practice in Miller (DJ Spooky), *Rhythm Science*; Miller expands on these ideas through his and others’ essays in Paul D. Miller (DJ Spooky), ed., *Sound Unbound: Sampling Digital Music and Culture* (Cambridge, MA: MIT Press, 2008). Bakhtin’s model of dialogism for musical culture is also explored in George Lipsitz, *Time Passages: Collective Memory and American Popular Culture* (Minneapolis, MN: University of Minnesota Press, 1990).

⁴⁰ For Bakhtin's major statements, see Mikhail Bakhtin, *The Dialogic Imagination: Four Essays* (Austin: University of Texas Press, 1992); M.M. Bakhtin, *Speech Genres and Other Late Essays*, ed. Caryl Emerson and Michael Holquist, trans. Vern W. McGee (Austin, TX: University of Texas Press, 1986); M. M. Bakhtin, *Problems of Dostoevsky's Poetics*, ed. Caryl Emerson (Minneapolis, MN: University of Minnesota Press, 1984).

⁴¹ For semiotics, the implications are usefully described by Petrilli and Ponzio, *Semiotics Unbounded*; and wider applications in cognitive science and discourse studies are developed in Paul Thibault, *Agency and Consciousness in Discourse: Self-Other Dynamics as a Complex System* (London and New York: Continuum, 2004).

⁴² Bakhtin, *The Dialogic Imagination*, 276.

⁴³ Bakhtin, *Speech Genres and Other Late Essays*, 87, 91.

⁴⁴ Bakhtin, *The Dialogic Imagination*, 358.

⁴⁵ *Ibid.*, 280.

⁴⁶ There is a vast literature on intertextuality and intermediality; for orientations to the use of the concept here see: Petrilli, "Dialogism and Interpretation in the Study of Signs"; Umberto Eco, "Metaphor, Dictionary, and Encyclopedia," *New Literary History* 15, no. 2 (Winter 1984): 255–271; Lemke, "Multimodal Genres and Transmedia Traversals"; Julia Kristeva, "Word, Dialogue, and Novel," in *Desire in Language: A Semiotic Approach to Literature and Art* (New York, NY: Columbia University Press, 1980), 64–90; Lotman and Uspensky, "On the Semiotic Mechanism of Culture"; Hugh J. Silverman, *Cultural Semiosis: Tracing the Signifier* (London, UK; New York: Routledge, 1998); Roland Barthes, "From Work to Text," in *Image, Music, Text*, trans. Stephen Heath (New York: Hill and Wang, 1988), 155–164; Norman Fairclough, "Discourse and Text: Linguistic and Intertextual Analysis within Discourse Analysis," *Discourse & Society* 3, no. 2 (April 1, 1992): 193–217.

⁴⁷ Accessible introductions to major topics include: Yan Huang, *Pragmatics* (Oxford; New York: Oxford University Press, 2007); Teun A. van Dijk, *Text and Context: Explorations in the Semantics and Pragmatics of Discourse* (London; New York: Longman, 1977); Talmy Givón, *Context as Other Minds: The Pragmatics of Sociality, Cognition, and Communication* (Amsterdam; Philadelphia, PA: John Benjamins, 2005).

⁴⁸ See Deborah Tannen, *Talking Voices: Repetition, Dialogue, and Imagery in Conversational Discourse*, 2nd ed. (Cambridge University Press, 2007); Deborah Tannen, "Intertextuality in Interaction: Reframing Family Arguments in Public and Private," *Text & Talk* 26, no. 4/5 (July 2006): 597–617; Deborah Tannen, "Abduction, Dialogicality and Prior Text: The Taking on of Voices in Conversational Discourse" (presented at the Annual Meeting of the Linguistic

Society of America, Baltimore, MD, 2009),
<https://www9.georgetown.edu/faculty/tannend/lsa%20plenary%20written%20version.pdf>.

⁴⁹ See Tomasello, *Origins of Human Communication*; Michael Tomasello, “The Key Is Social Cognition,” in *Language in Mind: Advances in the Study of Language and Thought*, ed. Dedre Gentner and Susan Goldin-Meadow (Cambridge, MA: MIT Press, 2003), 47–57; Jordan Zlatev et al., eds., *The Shared Mind: Perspectives on Intersubjectivity*, Converging Evidence in Language and Communication Research (Amsterdam: John Benjamins, 2008); Jean-Louis Dessalles, *Why We Talk: The Evolutionary Origins of Language* (New York, NY: Oxford University Press, USA, 2007); Givón, *Context as Other Minds: The Pragmatics of Sociality, Cognition, and Communication*; Thibault, *Agency and Consciousness in Discourse*; Teun A. van Dijk, *Discourse and Context: A Socio-Cognitive Approach* (Cambridge; New York: Cambridge University Press, 2008).

⁵⁰ See Norman Fairclough, *Analysing Discourse: Textual Analysis for Social Research* (Routledge, 2003); Theo Van Leeuwen, *Discourse and Practice New Tools for Critical Discourse Analysis* (Oxford; New York: Oxford University Press, 2008); Hodge and Kress, *Social Semiotics*, Chap. 3, “Context as Meaning: The Semiotic Dimension” .

⁵¹ Bakhtin’s and Lotman’s assumptions about dialogism at the levels of discourse and actual languages are also compatible with most views about language acquisition and language learning in linguistics (the social/familial environment of language use in a language community is the “trigger” for acquiring a language); for an overview, see Ray Jackendoff, *Foundations of Language: Brain, Meaning, Grammar, Evolution* (New York, NY: Oxford University Press, USA, 2003), 82–103.

⁵² Lotman, *Universe of the Mind*, 143–144.

⁵³ How to account for productivity or generativity in language remains an open research program in many disciplines and sciences. Ray Jackendoff provides excellent guides to the current state of research and recent debates; see Jackendoff, *Foundations of Language*; Ray Jackendoff, “Linguistics in Cognitive Science: The State of the Art,” *Linguistic Review* 24, no. 4 (December 2007): 347–401; Ray Jackendoff, “The Parallel Architecture and Its Place in Cognitive Science,” in *The Oxford Handbook of Linguistic Analysis*, ed. Bernd Heine and Heiko Narrog (New York, NY: Oxford University Press, 2009), 643–668; Ray Jackendoff, “What Is the Human Language Faculty?: Two Views,” *Language* 87, no. 3 (2011): 586–624. Much of the recent debate on language and recursion expands or critiques Chomsky’s theory since the Minimalist Program; see: Noam Chomsky, *The Minimalist Program* (Cambridge, MA: The MIT Press, 1995); Noam Chomsky, “Approaching UG from Below,” in *Interfaces + Recursion* =

Language? Chomsky's Minimalism and the View from Syntax-Semantics, ed. Uli Sauerland and Hans-Martin Gärtner (Berlin; New York: Mouton de Gruyter, 2007), 1–29.

⁵⁴ The “unbounded Merge” operation is a key feature of Chomsky’s recent theory; see Chomsky, *The Minimalist Program*.

⁵⁵ Chomsky, “Approaching UG from Below,” 5.

⁵⁶ Chomsky states: “The conclusion that Merge falls within UG [Universal Grammar] holds whether such recursive generation is unique to FL [the Faculty of Language] or is appropriated from other systems... [I]t is interesting to ask whether this operation is language-specific. We know that it is not.” (Chomsky, “Approaching UG from Below,” 7.) For applications and examples using linguistic and semiotic approaches, see Ray Jackendoff and Fred Lerdahl, “The Capacity for Music: What Is It, and What’s Special About It?,” *Cognition* 100, no. 1 (May 2006): 33–72; Fred Lerdahl and Ray S. Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, MA: MIT Press, 1996); Jean Nattiez, *Music and Discourse: Toward a Semiology of Music* (Princeton, NJ: Princeton University Press, 1990); Philip Tagg, *Music’s Meanings: A Modern Musicology for Non-Musos* (New York: Mass Media Music Scholars’ Press, 2012); Raymond Monelle, *Linguistics and Semiotics in Music* (Chur, Switzerland; Philadelphia: Harwood Academic, 1992).

⁵⁷ See Marcus Tomalin, *Linguistics and the Formal Sciences: The Origins of Generative Grammar* (Cambridge, UK: Cambridge University Press, 2006), 61–65, 168–173, 188–93; Pauli Brattico, “Recursion Hypothesis Considered as a Research Program for Cognitive Science,” *Minds and Machines* 20, no. 2 (July 1, 2010): 213–241; Corballis, *The Recursive Mind*; Michael C. Corballis, “The Uniqueness of Human Recursive Thinking,” *American Scientist* 95, no. 3 (June 2007): 240–248; Steven Pinker, *The Language Instinct: How the Mind Creates Language* (New York, NY: William Morrow & Company, 1994), 122–126, 201–206, 377–380; Gary F. Marcus, *The Algebraic Mind: Integrating Connectionism and Cognitive Science* (Cambridge, Mass.: MIT Press, 2001), 85–117.

⁵⁸ See Marc D. Hauser, Noam Chomsky, and W. Tecumseh Fitch, “The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?,” *Science* 298, no. 5598, New Series (November 22, 2002): 1569–1579; Steven Pinker and Ray Jackendoff, “The Faculty of Language: What’s Special About It?,” *Cognition* 95, no. 2 (March 2005): 201–236; Marcus Tomalin, “Syntactic Structures and Recursive Devices: A Legacy of Imprecision,” *Journal of Logic, Language and Information* 20, no. 3 (July 1, 2011): 297–315; Harry van der Hulst, ed., *Recursion and Human Language* (Berlin; New York: De Gruyter Mouton, 2010); Uli Sauerland and Hans-Martin Gärtner, eds., *Interfaces + Recursion = Language? Chomsky’s Minimalism and the View from Syntax-Semantics* (Berlin; New York: Mouton de Gruyter, 2007); Corballis, *The Recursive Mind*.

⁵⁹ Pinker and Jackendoff, “The Faculty of Language,” 211.

⁶⁰ Pinker and Jackendoff emphasize that recursion and syntactic structures support meaning formation and thought in ways parallel to Peirce’s description of semiosis: “The only reason language needs to be recursive is because its function is to express recursive thoughts. If there were not any recursive thoughts, the means of expression would not need recursion either.” Pinker and Jackendoff, “The Faculty of Language,” 230.

⁶¹ Ray Jackendoff has developed a useful model of the parallel architecture in language; see Jackendoff, *Foundations of Language*, 107–264; and Jackendoff, “The Parallel Architecture and Its Place in Cognitive Science.”

⁶² The descriptive levels of lexicon and encyclopedia have been part of the research programs of semantics and pragmatics in linguistics and the theory of meaning and symbolic knowledge in semiotics. For accessible student introductions, see Vyvyan Evans and Melanie Green, *Cognitive Linguistics: An Introduction* (Edinburgh, UK: Edinburgh University Press, 2006); and Dirk Geeraerts, ed., *Cognitive Linguistics: Basic Readings* (Berlin: Mouton de Gruyter, 2006); other important studies include Jackendoff, *Foundations of Language*, 271–293; Ray S. Jackendoff, *Language, Consciousness, Culture: Essays on Mental Structure* (Cambridge, MA: MIT Press, 2007), 43–75; Eco, *A Theory of Semiotics*, 84–120; Umberto Eco, *Semiotics and the Philosophy of Language* (Bloomington, IN: Indiana Univ. Press, 1984), 68–86, 97–108, 124–129; Umberto Eco, *The Limits of Interpretation* (Bloomington, IN: Indiana University Press, 1990), 67–70; 237–253; Eco, “Metaphor, Dictionary, and Encyclopedia.”

⁶³ See Gilles Fauconnier and Mark Turner, *The Way We Think: Conceptual Blending And The Mind’s Hidden Complexities* (New York, NY: Basic Books, 2002); George Lakoff and Mark Johnson, *Metaphors We Live By*, 2nd ed. (Chicago, IL: University Of Chicago Press, 2003); Ray S. Jackendoff, *Semantics and Cognition* (The MIT Press, 1985); Ray Jackendoff, *Meaning and the Lexicon: The Parallel Architecture (1975-2010)* (New York, NY: Oxford University Press, 2010), 1–39; Givón, *Context as Other Minds: The Pragmatics of Sociality, Cognition, and Communication*; Umberto Eco, *Kant and the Platypus: Essays on Language and Cognition* (San Diego & New York: Harcourt, 2000).

⁶⁴ This is a central thesis of Lotman and Uspensky, “On the Semiotic Mechanism of Culture.”

⁶⁵ The problem of infinite semiosis and the logic of the supplement in signification is also a central topic in Derrida's philosophy; see Jacques Derrida, *Speech and Phenomena: And Other Essays on Husserl’s Theory of Signs* (Evanston, IL: Northwestern University Press, 1973); Derrida, *Of*

Grammatology; Jacques Derrida, *Margins of Philosophy*, trans. Alan Bass (Chicago: University of Chicago Press, 1982).

⁶⁶ Bakhtin, *Problems of Dostoevsky's Poetics*, 166.

⁶⁷ See Joanna Demers, *Steal This Music: How Intellectual Property Law Affects Musical Creativity* (Athens, GA: University of Georgia Press, 2006); Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York, NY: Vintage, 2002); Rosemary J. Coombe, *The Cultural Life of Intellectual Properties: Authorship, Appropriation, and the Law* (Durham, NC: Duke University Press, 1998); Kembrew McLeod, *Freedom of Expression@: Resistance and Repression in the Age of Intellectual Property* (Minneapolis: University of Minnesota Press, 2007); Vaidhyathan, *Copyrights and Copywrongs*; Woodmansee and Jaszi, *The Construction of Authorship*, 1994; William Patry, *Moral Panics and the Copyright Wars* (New York, NY: Oxford University Press, 2009); Aufderheide and Jaszi, *Reclaiming Fair Use*, 34–93.

⁶⁸ See Ashley Kahn, *Kind of Blue: The Making of the Miles Davis Masterpiece* (Cambridge, MA: Da Capo Press, 2007); Richard Williams, *The Blue Moment: Miles Davis's Kind of Blue and the Remaking of Modern Music* (New York: W. W. Norton, 2010).

⁶⁹ See Berliner, *Thinking in Jazz*; Peter W. Culicover, "Linguistics, Cognitive Science, and All That Jazz," *Linguistic Review* 22, no. 2–4 (June 2005): 227–248; P. N. Johnson-Laird, "How Jazz Musicians Improvise," *Music Perception* 19, no. 3 (March 2002): 415–442.

⁷⁰ On the generative principles in improvisation, see Berliner, *Thinking in Jazz* and Aaron Berkowitz, *The Improvising Mind: Cognition and Creativity in the Musical Moment* (New York: Oxford University Press, 2010).

⁷¹ For general background, see Ted Gioia, *The History of Jazz*, 2nd ed. (New York: Oxford University Press, 2011), 271–274; and Kahn, *Kind of Blue: The Making of the Miles Davis Masterpiece*; on the use of the modal scales, see Samuel Barrett, "Kind of Blue and the Economy of Modal Jazz," *Popular Music* 25, no. 02 (2006): 185–200.

⁷² "When you go this way [thinking in scales rather than chord progressions] you can go on forever. You don't have to worry about changes, and you can do more with time. It becomes a challenge to see how melodically inventive you are. ... I think a movement in jazz is beginning, away from the conventional string of chords and a return to emphasis on melodic rather than harmonic variations. There will be fewer chords but infinite possibilities as to what to do with them." Miles Davis interview, in

Paul Maher and Michael K Dorr, eds., *Miles on Miles: Interviews and Encounters with Miles Davis* (Chicago, IL: Lawrence Hill Books, 2009), 18.

⁷³ For background, see Kahn, *Kind of Blue: The Making of the Miles Davis Masterpiece*, 142–152.

⁷⁴ On the history and forms of the blues, see Ted Gioia, *Delta Blues: The Life and Times of the Mississippi Masters Who Revolutionized American Music* (New York: W.W. Norton, 2008); Amiri Baraka, *Blues People: Negro Music in White America* (New York: William Morrow and Company, 1963); Alan Lomax, *The Land Where the Blues Began* (New York: Delta/Dell, 1994).

⁷⁵ Useful studies and background include: Miller (DJ Spooky), *Rhythm Science*; Christoph Cox and Daniel Warner, eds., *Audio Culture: Readings in Modern Music* (New York: Continuum, 2004); Michael Veal, *Dub: Soundscapes and Shattered Songs in Jamaican Reggae* (Middletown, CT: Wesleyan University Press, 2007); Miller (DJ Spooky), *Sound Unbound*; Jeff Chang, *Can't Stop Won't Stop: A History of the Hip Hop Generation* (New York, NY: St. Martin's Press, 2005); Mark Katz, *Groove Music: The Art and Culture of the Hip-Hop DJ* (Oxford: Oxford University Press, 2012); Joseph Glenn Schloss, *Making Beats the Art of Sample-Based Hip-Hop* (Middletown, CT: Wesleyan University Press, 2004); Navas, *Remix Theory*; the topics from the artist's and musician's perspective have also been covered in documentaries; see Gaylor, *Rip*; Ferguson, *Everything Is a Remix (Parts 1-4)*, 2012; David Dworsky and Victor Köhler, *PressPausePlay*, Documentary (House of Radon, 2011).

⁷⁶ See <http://www.whosampled.com>. If controlling remixing with copyright-protected samples is a continual unwinnable battle in the industry, then WhoSampled.com is great case of the marketing principle, “if you can't fix it, feature it!”.

⁷⁷ See Simon Reynolds, “Daft Punk Gets Human With a New Album,” *The New York Times*, May 15, 2013, sec. Arts / Music, <http://www.nytimes.com/2013/05/19/arts/music/daft-punk-gets-human-with-a-new-album.html>; Geeta Dayal, “Daft Punk's Random Access Memories,” *Slate*, May 21, 2013, http://www.slate.com/articles/arts/music_box/2013/05/daft_punk_s_random_access_memories_reviewed.single.html; Andre Torres, “Quantum Leap: Daft Punk Go from Sampling Disco Records to Creating Disco Records,” *Wax Poetics* (55), 2013, <http://www.waxpoetics.com/features/articles/quantum-leap>.

⁷⁸ The major collaborations, with all the dialogic orchestrated combinatoriality behind the compositions, are well-documented in a series of videos about the production of the album. See *Daft Punk | Random Access Memories | The Collaborators: Nile Rodgers*, 2013, http://www.youtube.com/watch?v=da_Yp9BOCaI&feature=youtube_gdata_player; *Daft Punk | Random Access Memories | The Collaborators: Giorgio Moroder*, 2013, http://www.youtube.com/watch?v=eYDvxo-M0OQ&feature=youtube_gdata_player; *Daft Punk | Random Access Memories |*

The Collaborators: Pharrell Williams, 2013,
http://www.youtube.com/watch?v=6QVtHogFrI0&feature=youtube_gdata_player.

⁷⁹ If you listen to *RAM* with good audio equipment you will hear a different quality of sound from Daft Punk's earlier recordings and from most popular music releases. Rhythm, groove, and beat elements (which are now emulated or simulated in digital loops and samples in techno and dance music) are almost entirely from live recordings by musicians (though, of course, processed and mixed in the studio).

⁸⁰ Kerry Mason and Thomas Bangalter, "Daft Punk on EDM Producers: 'They're Missing the Tools' (Interview)," Text, *Billboard*, May 6, 2013,
<http://www.billboard.com/articles/columns/code/1560708/daft-punk-on-edm-producers-theyre-missing-the-tools>.

⁸¹ On the technical details of the album production, see Paul Tingen, "Daft Punk: Peter Franco & Mick Guzauski: Recording Random Access Memories," *Sound on Sound*, July 2013, <http://www.soundonsound.com/sos/jul13/articles/daft-punk.htm>.

⁸² Reynolds, "Daft Punk Gets Human With a New Album."

⁸³ For useful compendiums of sources on appropriation and the cultural archive, see Evans, *Appropriation*; Charles Merewether, ed., *The Archive* (Cambridge, MA: The MIT Press, 2006); other important studies include Douglas Crimp, *On the Museum's Ruins* (Cambridge, MA: MIT Press, 1993); Martha Buskirk, *The Contingent Object of Contemporary Art* (Cambridge, MA: MIT Press, 2003); Bourriaud, *Postproduction*; Nicolas Bourriaud, *Altermodern: Tate Triennial* (London; New York: Tate Publications and Harry Abrams, 2009); McLeod and Kuenzli, *Cutting Across Media*.

⁸⁴ This is the topic of my Georgetown graduate seminar, "Remix and Dialogic Culture." The syllabus and background lectures are available on my university website: <http://www9.georgetown.edu/faculty/irvinem/CCTP725/>.

⁸⁵ I treat the continuum of appropriation from postmodern art to street art in Martin Irvine, "The Work on the Street: Street Art and Visual Culture," in *The Handbook of Visual Culture*, ed. Ian Heywood and Barry Sandywell (London and New York: Berg, 2012), 235–278.

⁸⁶ On Rauschenberg's combinatorial methods, see Branden W. Joseph, *Random Order: Robert Rauschenberg and the Neo-Avant-Garde* (Cambridge, MA: MIT Press, 2003); Branden W. Joseph, ed., *Robert Rauschenberg* (Cambridge, MA: MIT Press, 2002); Robert Rauschenberg, *Robert Rauschenberg: Works, Writings and Interviews*, ed. Sam Hunter (Barcelona, Spain; New York, N.Y.: Ediciones Polígrafa; D.A.P./Distributed Art Publications, 2006); Crimp, *On the Museum's Ruins*.

⁸⁷ See Crimp, *On the Museum's Ruins*; Rosalind Krauss, "Perpetual Inventory," *October* 88 (Spring 1999): 87–116; Robert S. Mattison, *Robert Rauschenberg: Breaking Boundaries* (New Haven, CT: Yale University Press, 2003).

⁸⁸ For good compendiums of street art and artists, see Roger Gastman, Caleb Neelon, and Anthony Smyrski, eds., *Street World: Urban Culture and Art from Five Continents* (New York, NY: Abrams Books, 2007); Patrick Nguyen and Stuart Mackenzie, eds., *Beyond the Street: With the 100 Most Important Players in Urban Art* (Berlin: Die Gestalten Verlag, 2010); Carlo McCormick, Marc Schiller, and Sara Schiller, eds., *Trespass: A History Of Uncommissioned Urban Art* (Köln: Taschen, 2010); Pedro Alonzo and Alex Baker, eds. *Viva La Revolucion: A Dialogue with the Urban Landscape* (Berkeley, CA: Museum of Contemporary Art, San Diego, and Gingko Press, 2011). Books and catalogues can't keep up with the continual hybridization in street art, so the best real-time indices for global street art are the many websites devoted to the form and movement. See especially: <http://www.woostercollective.com> (and their projects and books); <http://blog.vandalog.com>; and <http://www.brooklynstreetart.com> (more than Brooklyn).

⁸⁹ See Irvine, "The Work on the Street: Street Art and Visual Culture" for a study of the dialogic contexts of street art.

⁹⁰ Lotman and Uspensky, "On the Semiotic Mechanism of Culture," 213.

⁹¹ Lawrence Lessig has developed important arguments about "Read Only" / "Rewrite" cultures, but his view is based on the properties of technologies rather than on the underlying and necessary principles of symbolic systems that precede a specific technical implementation; see Lessig, *Remix*.

⁹² See the excellent proposals for stronger fair use in Aufderheide and Jaszi, *Reclaiming Fair Use*.

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