been tempted constantly to explore formal, historical, and speculative implications, which I have managed either to confine within footnotes or to devote hurried paragraphs in the main text. The result is admittedly rather sketchy and awaits appropriate infilling, but other work now beckons.

III

Remarks on *Fantasia on a Theme by Thomas Tallis* by Ralph Vaughan Williams

The first essay of this set addressed the conflict between a sensuous view of harmonic relations, embodied in function theory, and the highly energetic view that nourishes current neo-Riemannian theory. The second sketched a way of reconciling these two modes of thought. This third essay attempts to combine the two analytically, though along a different front from that of the second essay.

In much transitional tonal music of a century ago (as, indeed, in traditional, common-practice tonal music), the presence of functional tonics—at any level of structure in which they can be heard—creates what Brian Hyer imagined as a gravitational distortion of equally-tempered *Tonnetz* space.[42] Neo-Riemannian theory seems happiest operating in an apparently tonic-free, zero-gravity state, as its analytic products are transformational labels that have no sensuous-functional significance. Thus, passages of consonant triads that offer great resistance to *Stufen* interpretations or that otherwise require torturous labeling in some system—in other words, passages in which functional tonics are absent or only weakly effective—respond well to neo-Riemannian analysis and "…gain intrinsic intelligibility from the algebraic structure of the group."[43] But under conditions of tonal gravity, neo-Riemannian analysis takes on a certain dreamlike quality. It works unconstrained by the laws of gravity or of nature—just as we do when in our dreams we fly, or converse with friends and family members from long ago, or find ourselves magically transported from place to place. Yet such analysis may also be a window into a compositional unconscious, an occasion for

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[42] Hyer 1995, 128–9.

[43] Hyer 1995, 115, in reference to an analysis of the *Schlafakkorden* from *Die Walküre*.

insight and new perspective, and a source of therapeutic information to an analyst. But, like dreams, it does not touch a substantial and consequential reality, which can only be addressed while awake and, in obedience to gravity, with feet on the ground.

Even so, there are pieces that have functional gravitation, but of a kind that is unusual and even dreamlike in a way. A representative work is the *Fantasia on a Theme by Thomas Tallis* by Ralph Vaughan Williams, a renowned composition that heads a list of twentieth-century works that mix the sounds of old church modes with the conventions of late-tonal compositional rhetoric, producing something new that is also vaguely antique.

The Tallis theme that Vaughan Williams used as the basis of his piece is shown in Example 11 along with some minimal analytic overlay, which I will explain shortly. The "third mode" of its title is, of course, Phrygian, and Tallis, being an excellent composer in the strict style, knew how to handle expertly this comparatively difficult mode, even in a simple homophonic setting like this one written for use in a stripped-down Anglican service.

I am not now going to drop the bombshell that neo-Riemannian theory is the analytic key for a late sixteenth-century modal piece, which is a dud, I should think. I will show, however, that such theory is appropriate to illuminate the circumstances in which Vaughan Williams found himself when he decided to appropriate the Tallis tune. Vaughan Williams heard this piece as a fine example of functional Tudor music, but he also heard it as an early 20th-century composer of tonal music, characteristically on the lookout for new resources.

It is likely that Vaughan Williams's interest in the chord usage of this piece—for that is what stands out most prominently from its homophonic texture—centers on the clear separation of the abstract and systematic role of the various triads based on major/minor tonality from their particular structural and rhetorical roles in the piece. Put more concretely, he recognized that the G-major chords can sound like dominants of a key on C yet are clearly acting as tonics of a mode on G. In the same way, the C-minor chords, which should by rights be tonics, sound like subdominants. It is possible to hear tonal functions in this environment, but these functions are no longer attached to the traditional major-minor system that gave rise to them.

In an important study on the functional extravagance of chromatic chords, Charles Smith introduced the term "modal chromaticism" to cover this very effect. Modal chromaticism is a useful construct

> when we find a fragment of a conventional progression that has been forced into a context that contradicts its apparent functional allegiance and imposes another functional interpretation, usually around a different tonic. The effect of noticing such a functional transformation is that we hear both of these contradictory functional interpretations, the systematically implicit and the contextual, resonating, sometimes quite uneasily, through the passage.[44]

Helpfully for us, Smith sketched a preliminary outline of a "Phrygian" progression system reproduced as Example 12. In this system, the $\flat\hat{2}$ is what I would term the agent of the pivotal (or "dominant") function. The preliminary outline is full of question marks, which underscore its speculative nature, which was unavoidable since no late nineteenth-century composer was writing—nor any theorist analyzing—consistent Phrygian-system pieces.

Returning to the Tallis piece, Example 11, let us attend to the simple functional labels, which are mostly those used by mainstream European Riemannists. The top-row labels reflect systemic function—the sense that a key-profile algorithm would propose C-minor as a strong candidate for background key. I have boxed two progressions where a C-minor background comes through the strongest. The bottom row, whose functional labels are circled, show the rhetorical and structural functions of chords in this Phrygian piece; Smith's $\flat\hat{2}$ pivotal function is added to the mainstream labels. This analysis recognizes that G is the tonal center and that it is frequently confirmed through a plagal cadence from C. Also of note here is the constant fluctuation between major and minor triads over the G final. While this problematizes to some extent the hearing of G as dominant of C, it also contributes mightily to the unease that Smith mentioned by creating an modally indistinct but shimmering tonal center.

My point is this: because of the bifurcation of systemic implication and contextual behavior, the motive power of the chords here is screwed up. That is to say, the functional attitudes and moods of the objects are confused, and we can confidently rely neither on their character nor their good behavior.

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[44] Smith 1986, 129.

Functional analysis must pretend that everything is OK and that behavior can be normalized or otherwise explained analytically. But that is not the substantial and consequential reality of *this* piece.

In this environment, while the chordal objects are not lifeless, they are tonally unmotivated, perhaps even confused. The question arises: How can Vaughan Williams make his chords move? I am not asking about the Tallis, which moves under its own, pre-common-practice power. The issue is how Vaughan Williams can conserve and enrich the environment created by the Tallis tune while composing a piece of twentieth-century music.

As to conservation, Vaughan Williams maintained a harmonic link between his work and the Tallis by (1) restricting the chordal vocabulary of the fantasia to major and minor triads as much as possible. This restriction was a profound discipline for a post-Wagnerian composer writing in 1910, but it is responsible for successfully working in and from the Tallis. As we will see, it is also responsible for some striking harmonic progressions that Tallis certainly wouldn't have composed (2) Vaughan Williams orchestrated his piece for two string choirs, a larger and a smaller, from which a solo quartet also was drawn. This timbral restriction is another gesture of respect for the Tallis original, which was a similarly restricted choral work. (3) Vaughan Williams treated his choirs much as Tallis might have treated a 30-voice ensemble (or as he did with his famous 40-voice *Spem in Alia*) by using them sometimes in tutti and sometimes in antiphonal combinations.

The first narrative arc of the piece consists of an introduction, a statement of the theme, a figurational variation of the theme, and then a "modern" exploration of the Tallis environment. The post-introduction section can be understood as a kind of bar form, with two Tallis *Stollen* followed by a Vaughan Williams's *Abgesang*, an analysis that harmonizes and magnifies the bar form of the Tallis piece itself. I will direct my analytic comments first to the introduction and then to the *Abgesang*, the two places where Vaughan Williams takes precedence over Tallis.

The introduction begins with the chord and counterpoint progression shown in Example 13: Introduction through rehearsal A+3, the first "measure" of the example. Vaughan Williams signals a number of things in this progression. The contrary-motion counterpoint is pure Tallis: 8–6–3–8–6. The major-minor

shimmering that characterizes Tallis's treatment of the modal final, G, is also reenacted here in the relationship of the first and third chords, emphasized by the plus and minus signs (+ for major, and – for minor). Note also the mixed $\hat{2}$ associated with the modal shimmering: a non-Phrygian $\hat{2}$ (A♮ in the bass) follows the non-Phrygian G-major triad, and a Phrygian $\hat{2}$ follows the Phrygian G-minor triad (the A♭ $^6_3$ chord).

These backwards-looking touches are balanced by a thoroughly modern chord-root progression, noted between the staves, that is in neither a key nor a mode. It floats in a very light, G-ish tonal gravity before bumping unceremoniously into a surprising G♭-major triad, in the contrapuntally surprising $^6_4$ position to boot. The outer-voice counterpoint, still pure from Tallis's point of view, also shows some modern touches: space between the voices closes at a consistent rate of 4 semitones per chord change—until the last , that surprising G♭, which closes by only 3 semitones from the previous chord. This outer-voice counterpoint is the main constructive feature of the opening, since mode is already shimmering and tonal center, while attempting to materialize as G in the first few chords, is blown away by the G♭ at the end. What creates the particular chord qualities and roots? I submit that these are induced "from without" and that a neo-Riemannian transformational apparatus is useful to show this.

In the first analytic "measure" of Example 13, relationships are shown using L/P/R transformational labels between the chords on the upper staff. I use this particular set to reflect the remoteness of one triad compared to its immediate neighbor, an attribute I hear as expressively primary here. That is, in such light tonal gravity the overall impression can be one of "each chord for itself," or what Kurth termed an "absolute progression."[45] Each chord proposes itself, however tentatively, insecurely, or improbably as **T**, with each succeeding chord supplanting the claims of the previous one. L/P/R transformations are uniquely suited to this environment because they derive from procedures of chordal "alteration," a situation in which the sounding aspect of a chord is changed (transformed) without changing some underlying meaning. For example, as

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[45] See Rothfarb 1988, Chapter 7.

originally used by Riemann, a label like 𝕿̶ describes a Tonic-functioned chord altered by the *Leittonwechsel* transformation, yet the chord retains its **T**-ness despite the swapping in of the leading tone for the root. Riemann himself was reluctant to recognize multiple alterations—e.g., the relative of the *Leittonwechsel*—lest the claim that a constant underlying tonal function was still effective despite considerable surface deformation be taken as merely (and laughably) notional instead of actually (and productively) hearable. Neo-Riemannian theory, on the other hand, is predicated on the idea that a whole set of triads can be manufactured by variously altering a single prototype. In this regard, however, the fact that a C-major triad when transformed by LR becomes a G-major triad is non-congruent with the observation that the two stand in relationship of, say, **T** and **D** (or that LR "is the same as" some operation X that transforms a tonic into a dominant);[46] for LR claims that if C was construed as **T**, then G also expresses **T**; G is an "altered" C and retains an essential C-ness. As Hyer recognized, "…from the transformational potential of a single triad, the group as a whole disperses the functional 'significance' of that triad among the harmonic consonances woven together to form its algebraic fabric; there is no one triad that forms a tonic for the group as a whole."[47] In the end, L/P/R neo-Riemannian analysis stands quite apart from a sensuous-functional analysis; it is rather the manufacturing record of how chord X, possessing attribute A, was molded into chord Y, still possessing attribute A, at least in theory. In the string of absolute progressions here, attribute A is a vague, tentative, and insecure **T**.

The L/P/R system shows relationships according to root motions by third and modal change; **T**, **D**, and **S** are based on root relations by perfect fifth. The opening of the *Tallis Fantasia* is composed using root changes by second, which suggests the penetration of melodic-contrapuntal values—located in previous discussion between outer voices—further into the harmonic dimension. The ultimate expression of melodic-harmonic preeminence, however, is not in the first analytic measure of Example 13 but in the second, where root-position major triads are planed in a kind of organum. As a result, the analytic technique there

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[46] A similar point is made by Henry Klumpenhouwer, "Some Remarks on the Use of Riemann Transformations," *Music Theory Online* 0.9 (1994).

[47] Hyer 1995, 127.

shifts from L/P/R to conceptually simpler pitch-transposition T_x, with x being
semitone-interval units; while L/P/R can "work" there, it models the situation
there less naturally and accurately than pitch transposition. (Each alteration from
one chord to the next requires four operations, such as *LRPR*, etc., which makes
them all four-letter words—a rather discouraging analytic portent.)

Back in the first measure, where L/P/R is suggested by the absolute quality
of the chord changes, operations can be disciplined by using G-Phrygian as
prototype and tooling the individual chords accordingly. That is, given a choice
of transformations that take one chord to another, the "best" one is that which
distorts a G-Phrygian scale the least, which, in other words, uses the fewest notes
from outside the prototype scale. It is for this reason that the first and fourth
operations, both of which transform a major triad into another major triad a
whole step lower, are analyzed differently. Example 14 explains. The top staff
shows the first transformation, from a G-major to an F-major triad, which can be
described by three L/P/R synonyms. G major contains B♮, a harmonically
"perfecting" variant that characterizes Tallis's own treatment of Phrygian, as we
have seen; while a departure from prototype, it is but a mild one. A♮, as noted
above, also departs from prototype. The first L/P/R word, *PRLR*, restores B♭ as
its first operation and holds off introducing A♮ until the last moment, while the
other two fail to temper B♮ at all and, in one case, produce A♮ earlier than *PRLR* .
Moreover, the other two introduce non-Phrygian pitches, E♮ and F♯, both of which
eventually precipitate out after working the appropriate transformations. In
terms of faithfulness to the prototype, then, *PRLR* is the superior procedure. In
contrast, the lower staff of Example 14 shows that *PRLR* is the least faithful in
working the last chord change, from A♭ to G♭, while *LRPR* is most, producing the
non-Phrygian deformations, G♭ and D♭, only at the end of the process.

Moving into the second analytic measure, the previously unheard syllable *PL*
is sounded as a transformational word and introduces the second section of the
introduction. (None of the previous words had this syllable, associating *P*s with
*R*s and *R*s with *L*s.) This word is accompanied by an articulation and change of
texture, with the hint of D♭ acting like C♯ leading tone to D. This section stands on
dominant D, a repeated *P* operation shimmering its mode: minor tune-fragments
(bracketed as –) alternate with major-chord responses (bracketed as +). At the
conclusion of the section, Vaughan Williams uses the ascending upper tetrachord

of the mode to span D to G. This gesture is taken from the opening of Tallis's third line, where the systemic function (but not contextual function) was shown to discharge dominant to tonic. (Consult Example 11, beginning of third system.)

After the presentation of the Tallis tune and its varied reprise, Vaughan Williams was faced with the problem of extricating himself from Tallis's 16th-century Phrygian constraints, which comes to a head a rehearsal E. (Example 13: Rehearsal E ff.) Vaughan Williams lingers over a fragment from the final cadential gesture of the Tallis, all of whose chords fit properly into the G Phrygian mode ("measure" 1). This fragment is then echoed at quite a distance both tonal (via *RPR* between the chords beginning the segment) and dynamic, a distance that seems responsible for the distortion in the echo that denatures the Phrygian mode ("m." 2). After this transition, Vaughan Williams returns to the technique of call-and-response used in the introduction ("mm." 3–5). Here, however, the harmonic effects are more striking while the outer-voice counterpoints of the responses revert to the pristine standard of the opening gesture. The motion to and from the hexatonic pole, F♯–d–F♯, which accompanies the upper-neighbor motive around the reciting note, is a signal response of the 20th century to the 16th. At the next venture into this figure ("m." 4), the upper-neighbor motive is transformed into a whole step and, by not returning to C♯, strives to pass towards E, attained only after considerable boundary turbulence between tonal centers, manifested by colliding dynamic and harmonic masses in "m." 5: fortissimo major chords separated from pianissimo minor ones by the distancing transformation *RPR* that was so effective at the beginning of this section.

The middle section of the piece inhabits the home pitch class of Phrygian, E. But Vaughan Williams, true to his tonal traditions, ends the piece back in G, a tonal center he chose, I suspect, for the resonant low C the cellos and basses could use for the penultimate chord. The return passage, sketched in Example 13: U–6, is also through boundary turbulence. The transformations *PLP* and *RP*, which were prominent features of the material back around rehearsal E, are reapplied here at the beginning of the trip journey to G. Unlike the earlier boundary passage, the thoroughgoing minorizing of triads here so cloud the interior that the dynamic collisions seem to be happening in a fog; the arrival of the G major chord is particularly gratifying as a result.

In general, Examples 13 and 14 attest to the competence of neo-Riemannian and other transformational labels in contexts where sensuous-functional chord labels have trouble making sense, where, in other words, tonal flow is strongly manipulated and disorienting. Such contexts, I submit, correlate in particular to Kurthian absolute progressions rather than to generalized instances of sensuous-functional stress. (For example, relations among Tonic and Antitonic objects examined in the second essay do exhibit stress and, from a narrow view of "harmony" that is frequently prefaced by the adjective "diatonic," may suggest a transformational palliative. Yet I maintained both there and in other writings that sensuous-functional relations are hardly so brittle as to break from an effect like B7 progressing to C+ in [putative] E minor, or some other inventive if non-standard relation.) In other words, when individual chords in a succession of chords propose themselves (however meekly or ineffectually) as local tonics, and when such proposals pile up and accumulate, there is no longer any sensuous-functional transactions and discharges, no circulation of **T**, **D**, and **S**. Yet there is still measurable chord change, which can be adequately modeled by L/P/R or other sensuously indifferent transformational systems (such pitch transposition T_x or a "Uniform Triadic Transformation" system as outlined in Hook 2002).

And now a strategic retraction: in the opening paragraphs of this essay, I opened up space for transformational analysis in cases when "functional tonics are absent or only weakly effective" evincing a "tonic-free, zero-gravity state." It is now clear that I identify this state not as being absent of tonics but rather as overcrowded with them. Still, the effect upon analysis is the same—a loss of orientation that prevents sensuous-functional transactions from taking place.[48] To have attempted this distinction earlier might have struck readers as fussy, so I thought it better to set down a heuristic position and then let the Vaughan Williams composition undercut it.

My purpose in these three essays has been, obviously, threefold: (1) to deflate immoderate enthusiasms for transformational approaches as cure-alls for various music theoretical and analytical anxieties[49]; (2) to cross such approaches with

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[48] Related problems of having "too much tonality" are discussed in Harrison 2002, 126–8.

[49] In this matter it shares common ground with Lambert 2002, London 2002, and O'Donnell 1998.

others in the hopes of producing vigorous analytic hybrids; and (3) to identify cases in which transformation theory may indeed be the best first approach. That the three are related yet stand independently—that they, in other words, create an absolute progression of ideas—is a happy accident, and hopefully a useful one.

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