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### Introduction

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# Theory and Background Part I

## 1 Core Aspects of Tonal Compositions

- 1.1 Structured Tonal Motion
- 1.2 Polyphony
- 1.3 Musical Time
- 1.4 Repetition

# 2 Meta-languages for Abstraction and Structure

- 2.1 Description, Instantiation, and Interpretation
- 2.2 Grammar and Syntax
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- 2.2.2 Grammar-Based Music Theory
- 2.3 Combinatory Categorial Grammar
- 2.4 Constructive Logic and Type Theory

## 3 Constructive Logic and Type theory

- 3.1 Curry-Howard Correspondence
- 3.2 Composable and Verifiable Derivations
- 3.3 Abstract Context-Free Grammar as Dependent Type
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# 4 Outlook

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- 4.1.1 Modular Theories that Work Together
- **4.1.2** Relating General Principles to Style Specific Constraints
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## **5** Tonal Motion as Hierarchical Processes

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- 5.4 Temporal Abstractions
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## **6** Timely Processes

6.1	Difficulties in	Combining	<b>Tonal Structure</b>	and Metrical Structur
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#### 6.1.1 Coordinating the metrical structure with pitch structure

Passing Note in a Triple Meter

**Accented Passing Note** 

**Suspensions** 

**Interruptions** 

- 6.1.2 Temporal Proportions: Phrasal expansion and contraction
- 6.2 Temporal relations of processes
- 6.2.1 Perceived vs Interpreted Simultaneity
- 6.2.2 A Non-Linear Topology of Musical Time
- **6.2.3** Modeling Meter as Nested Proportions
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### 6.4 Various Types of Structural Repetition

- **6.4.1** Exact Repetition
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- 6.4.3 Reinterpretation
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#### 6.5 Existing Formalism of Repetition

- 6.5.1 Without Syntactical Constraints
- **6.5.2** With Syntactical Constraints

#### 6.6 A Formal Model of Structural Repetition

- 6.6.1 Typed Holes and Arrows: A Functional Interpretation of Templates
- 6.6.2 Repetition structure as Higher-Order Templates
- 6.6.3 Repetition-Syntax-Material Decomposition
- 6.6.4 Cross-Domain Analogies of Repetition Structure

## **Computational Experiments Part IV**

- 6.7 Encoding and Generating Instances of Galant Schemata
- **6.8** Sampling Metered Polyphony with Repetition Constraint
- **6.9 Compression by Exploiting Structural Repetition**