Proposed grammar v0.3

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1 New tritone substitution rules

Tritone substitutions were previously interpreted using the categories:

4a. $\mathrm{Xm}^7 := \sharp IV_X m^7/VII_X(m)^7 : \lambda x.leftonto(x)$
4b. $\mathrm{X}^7 := \sharp IV_X^7/VII_X(m)^7 : \lambda x.leftonto(x)$

These correctly accepted tritone substitutions such as those found in Autumn Leaves, but left no indication in the semantics produced that a tritone leap had been used. It also meant that in a cadence with a tritone leap in the middle (or one implied by a downward semitone step), all chords proceding the tritone had to be interpreted as tritone substitutions.

A better approach is to interpret the tritone leap (actual or implied) at the point at which it occurs, allowing a cadence before it to be interpreted simply as cadential dominant sevenths.

The following new categories interpret tritone leaps and signify them in the semantics with a *tritone* predicate. A semitone step down between dominant sevenths can be interpreted as a *leftonto* step composed with a tritone jump.

4a. $\mathrm{X}^7 := I_X^7/VII_X(m)^7 \ : \ \lambda x.tritone(leftonto(x))$
4b. $\mathrm{Xm}^7 := I_X m^7/VII_X(m)^7 \ : \ \lambda x.tritone(leftonto(x))$
4c. $\mathrm{X}^7 := I_X^7/\flat V_X(m)^7 \ : \ \lambda x.tritone(x)$
4d. $\mathrm{Xm}^7 := I_X m^7/\flat V_X(m)^7 \ : \ \lambda x.tritone(x)$

Note that a single tritone substitution for a dominant seventh will now be viewed semantically as a tritone jump plus a left step onto the chord, followed by a tritone jump (back again) plus another left step onto the following chord. So, for example, the cadence $I\ II^7\ \flat II^7\ I$ receives the following categories:

I	II^7	$\flat II^7$	I
$I : I$	$II^7/\flat II^7 : \lambda x.tritone(leftonto(x))$	$\flat II^7/I^7 : \lambda x.tritone(leftonto(x))$	$I : I$

This gives the cadence the final interpretation:

$$I : I + tritone(leftonto(tritone(leftonto(I))))$$

2 Consequent changes

As a result of the new view of the tritone substitution, there is no longer a need for the tritone substituted coordination rule 0c, since this was devised in order to deal with cases now dealt with by 4c and 4d.

For the same reason, the tritone inversions previously required for the diminished seventh category are no longer needed: diminished sevenths can be assumed annotated to give a small step to the following chord.

3 Other changes

The identity diminished seventh resolution and its inversions (a, and d, g and j) are now ommitted, since they should not appear in annotated chord sequences. These corresponded to interpretation of the diminished seventh as a passing harmony. Such harmonies should not have been annotated as chords in the sequence in the first place and if they are this is a fault on the part of the annotator (or tagger).

I have removed the ^{7}s from category 2a, which I should never have added in the first place.

4 Grammar v0.3

These changes give a new version of the grammar as follows (lettering of 7 categories is maintained for comparison to the previous version):

0a.	X(m)	:=	$I_X(m)\backslash I_X(m)\ :\ \lambda x.x$
0b.	X(m)^7	:=	$I_X(m)^7\backslash I_X(m)^{(7)}\ :\ \lambda x.x$
1.	X(m)	:=	$I_X(m)\ :\ X$
2.	X(m)	:=	$V_X(m)\backslash V_X(m)\ :\ \lambda x.x$
3a.	Xm^7	:=	$I_X m^7/IV_X(m)^7\ :\ \lambda x.leftonto(x)$
3b.	X^7	:=	$I_X^7/IV_X(m)^7\ :\ \lambda x.leftonto(x)$
4a.	X^7	:=	$I_X^7/VII_X(m)^7\ :\ \lambda x.tritone(leftonto(x))$
4b.	Xm^7	:=	$I_X m^7/VII_X(m)^7\ :\ \lambda x.tritone(leftonto(x))$
4c.	X^7	:=	$I_X^7/\flat V_X(m)^7\ :\ \lambda x.tritone(x)$
4d.	Xm^7	:=	$I_X m^7/\flat V_X(m)^7\ :\ \lambda x.tritone(x)$
5.	X(m)	:=	$I_X(m)/V_X(m)\ :\ \lambda x.rightonto(x)$
6.	Xm	:=	$\flat VII_X m\backslash\flat VII_X m\ :\ \lambda x.x$
7.	X$\circ$7	:=	(b) $\flat V_X(m)^7/VII_X(m)^7\ :\ \lambda x.leftonto(x)$ (c) $IV_X(m)^7/\flat VII_X(m)^7\ :\ \lambda x.leftonto(x)$ (k) $VI_X(m)^7/II_X(m)^7\ :\ \lambda x.leftonto(x)$ (l) $\flat VI_X(m)^7/\flat II_X(m)^7\ :\ \lambda x.leftonto(x)$