

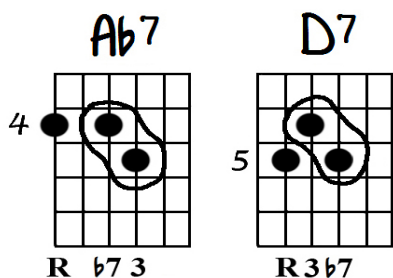
Harmonic Improvement

Ted Greene — 1975, Feb 20 and 1976, June 4 & 6

PART III

5) **The Cross-Cycle or b5th Substitution Principle** A sometimes used substitution principle in modern harmony is to replace any dominant 7th type chord with another dominant 7th type chord, but whose root is a b5th higher. Example: given Am7 – D7 – G you could try playing Am7 – Ab13 – Gmaj7. As to why this type of substitution works, observe:

- 1) The most important notes in a dominant 7th chord (termed its *essence*) are its 3rd and its b7th.
- 2) The essences of dominant 7th chords whose roots are a b5th apart are, amazingly enough, the same. Notice:



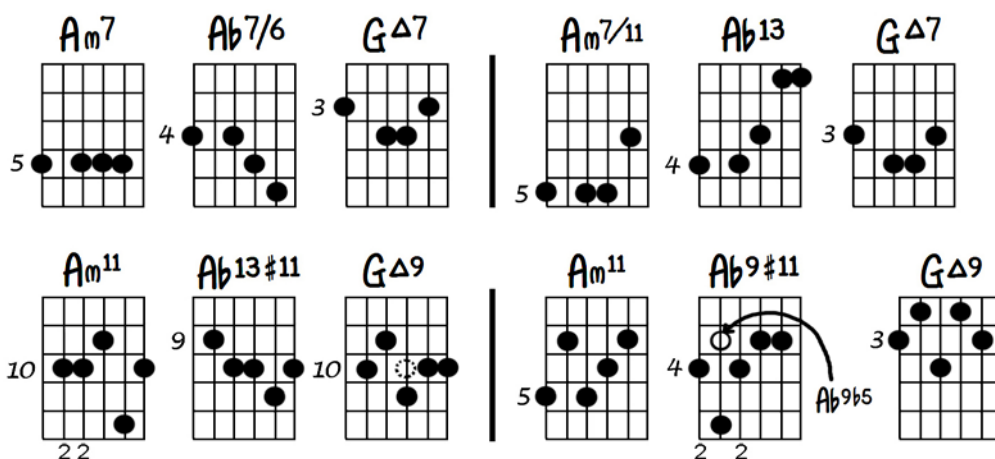
The 3rd and b7th of Ab7 are C and Gb; the 3rd and b7th of D7 are F# and C. Since Gb and F# sound the same on the guitar (and all tempered-tuning instruments), the essences of D7 and Ab7 are virtually the same. Because the *essences* of these chords whose roots are a b5th apart are the same, theoretically, you might say that any extensions or altered chords should work for each other in this b5th relationship.

However, many of these sound poor or out of place, so some suggestions on the more tasty substitutions might prove helpful:

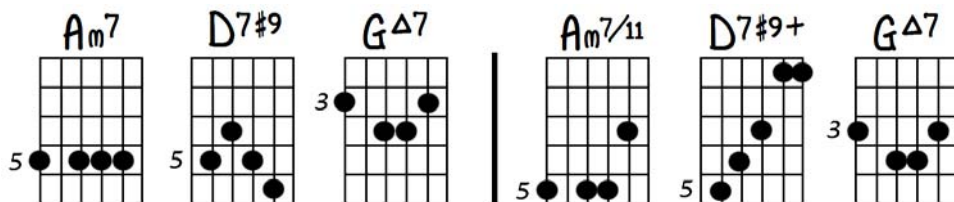
Taking the normal ii7 – V7 – I progression in G as a vehicle, instead of just playing Am7 – D7 – G, try the following substitutions:

| Am7 (Ab7/6) Gmaj7 | Am7 (Ab9) Gmaj9 | Am7/11 (Ab13) Gmaj7 |

| Am11 (Ab9b5 or #11) Gmaj9 | Am11 or 7/11 (Ab13#11) Gmaj9 | Try these physical examples of some of the ideas:



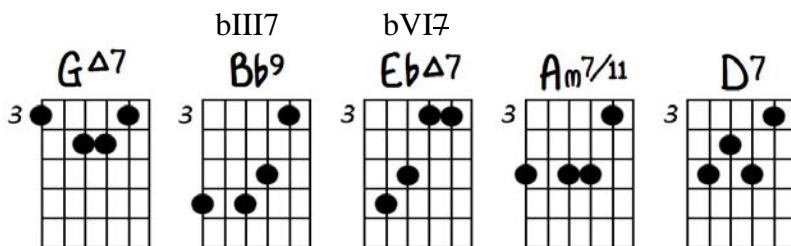
Notice the relationship between these examples and the first two above.



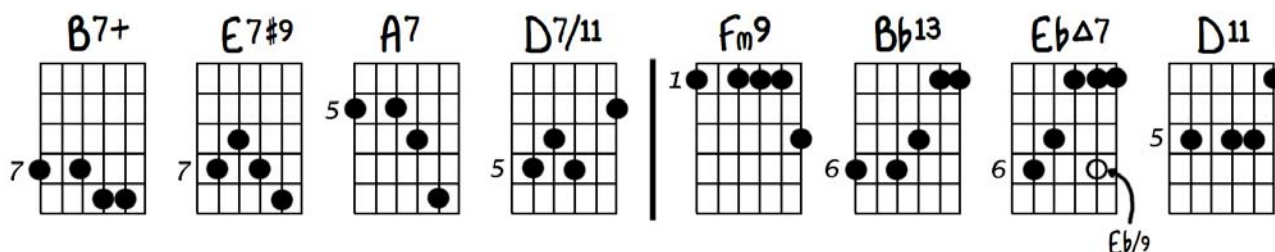
This gives us a clue into the effect of the b5th substitution principle in many cases; thru observation and experimentation it has been found that the *major scale extended dominants* and the *overtone dominants* are usually the best choices for use in the b5th substitution principle, and the effect is similar to using an altered dominant type on the original chord.

Sometimes because of the “pull” of a certain b5th substitute, a *major type* chord is substituted instead of a dominant 7th type. The most frequent degree for this is on the bIII7 to bVI. Observe:

Given: G – E7 – Am (or A7) – D7, you might play:
 // // // // //



Due to Back-Cycling, m7 chords sometimes find their way into a progression as a b5th substitute. Compare:



Notice that the “melody” of the substitute chords (Fm9 – Bb13 – Ebmaj7) does not clash with the original “melody,” and the key in general. Unfortunately, when trying to apply the b5th substitutions to songs, you will find that more often than not a chord *will* clash with the melody, or will sound forced or contrived.

The b5th principle should be treated with reverence and respect, in this man’s opinion, because on those rare occasions when it fits perfectly, it is like a breath of fresh air; but it should never be used just for the sake of using it, so that one can say to himself or others, “Look here, I’m using the b5th principle.” After all, the whole ideas in music is to find beautiful sounds, right?, not to play intellectual games to show how much we know or how clever we are. The only reason for these sermon-like comments is that most students, upon learning the b5th principle, tend to go ape with it and force it where it doesn’t fit.

PART IV

More Common Tone Substitutions:

6) Chords whose roots are a 3rd apart often have some notes in common, sometimes many, and once in a while, even identical notes. This can lead to some interesting substitutions, some of the more common of which are as follows:

[All substitutions don’t work well all the time—trial and error will be your teacher.]

1) A *major type* chord can be *replaced* with a *minor (7th) type* chord whose root is a *minor 3rd lower* (it acts like a vi in relation to the major chord it is replacing) or a *major 3rd higher* (it acts like a iii). Examples: Cmaj7 may be replaced with Am7 or Em7; Ab may be replaced with Fm9 or Cm7 or Cm7 Fm7.

2) A *minor 7th type* chord can be *replaced* (preceded or followed) with a *major type* chord whose root is a *major 3rd lower* or a *minor 3rd higher*. Examples: Am7 can be replaced with F/9 or Cmaj9; Em7 can be replaced with C or Gmaj7.

3) A *minor 7b5 type* chord can be *replaced* (preceded or followed) with a *dominant 7th type* chord whose root is a *major 3rd lower*, or a *minor type* chord whose root is a *minor 3rd higher*. Examples: Bm7b5 can be replaced with G13 or Dm7 or Dm9 G9; Em7b5 can be replaced with C7/6 or Gm6/9 or Gm7/11 C13.

You will be seeing all these principles at work in the back-up arrangements of songs you'll be working on, so don't worry about memorizing all this just yet; just browse and remember that this type of thinking *exists*, and by referring back to it occasionally, as you'll have to in order to complete certain assignments, it will sink in.

4) This one is more rare: a *dominant 7th type* chord can be replaced with a *minor 7b5 type* chord whose root is a *major 3rd higher*. This is effective in the following situation mainly:

Given:

Dm7	G7	Cmaj7	Dm7	G7	Cmaj7
//	//	////	//	//	////
Dm7	G9	CΔ7	Dm7	G7	CΔ7

Substitute:

FΔ7	Bm7b5	Em7	Am7	Dm7	G7	CΔ7
8	7	7	5	5	3	3

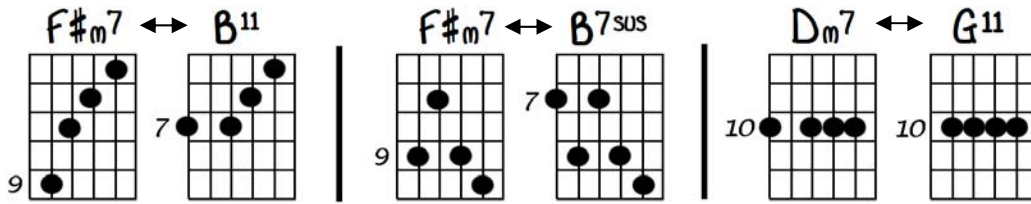
for Dm7 for G7 for Cmaj7.....

IV7 vii^{b7} iii7 vi7 ii7 V7 I7

All of the above principles fall under the heading of what we will call **3rd Substitution**. Half-step embellishment and back-cycling are forms of **Chord Addition**, while b5th and 3rd Substitution are forms of **Chord Substitution**. Remember that when you do something like play G9 for G7, or Cmaj7 for C, this is referred to on these pages as **Chord Enrichment**.

7) Remember about companion dominant 7th's and minor 7th's, such as D7 and Am7 types? One reason that they are companions is that they have quite a few common tones—compare the notes in Am7 and D9 for instance. Now compare Am6 and D9. We can derive a few substitution principles from this information:

- 1) Any *minor 6 type* chord can be *replaced* with a *dominant 7th type* chord (especially 9th's, 13th's, 9b5's, #11's and 13#11's) whose root is a *4th higher*.
- 2) Any *minor 7 type* chord can be *replaced* (or followed) with a *dominant 7sus type* chord whose root is a *4th higher*. Compare:



- 3) A little less commonly useable: Any *minor 7 type* chord can be *followed* (or replaced) with a *dominant 7th type* chord whose root is a *4th higher* (or vice versa).

These principles will all be referred to as **Companion Dominant Substitution**. (For the “categorizers”: *Companion Dominant Substitution* is a branch of *Common Tone Substitution*, which is a branch of *Chord Substitution*, which is a branch of *Harmonic Improvement*, which is a branch of *music*, which is a branch of....)

PART V

8) Any *minor 7 type* chord may be *replaced* with a *dominant 7th type* chord on the *same root* or *vice versa*. Examples: A9 for Am9, or Am9 for A9. Even though a dominant 7th type and a minor 7th type can have many notes in common, there seems to be a great difference in their *color* or *effect* on the ear (since the only *main* difference between the two types is the 3rd or b3rd [135b7 vs. 1b35b7] we have to assume that the 3rd is a very special note to human beings), so be *careful*; as usual, experimentation is going to help you a lot.

9) A chord may be *preceded* (or followed) with *other* chord in its *own* key, especially with chords whose *roots* are in *scalewise* order. Example:

Given: Am7 – D7, you might play: Cmaj7 – Bm7 – Am7 – D7 or you could “squeeze” the Am7 into the next measure: Cmaj7 – Bm7 – Am7 – D7.

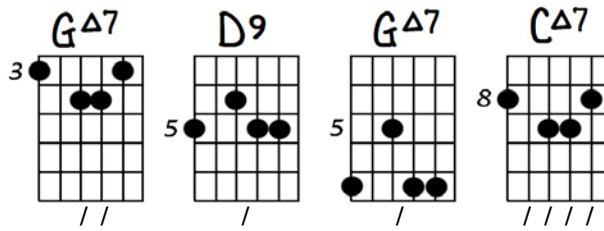
Another example: Given: G – C, you might play Gmaj7 – Am7 – Bm7 – Cmaj7.

Notice that the added chords can be in the same measure as the chord they precede or in the previous one. This principle will be referred to as (**Diatonic**) **Scalewise Embellishment**. (abbreviated **SW EMB**.)

Here is an example of **Diatonic Embellishment** that uses chords whose roots are not in scalewise order:

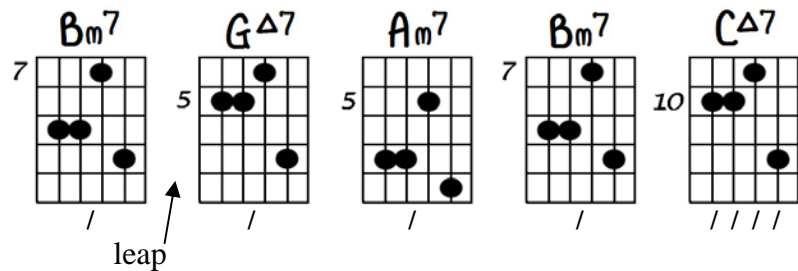
Given: G – C substitute:
 //// ////

The big feature in this type →
 of sound is the *bass* movement.



Diatonic sounds are also effective with “leaps” in the bass.

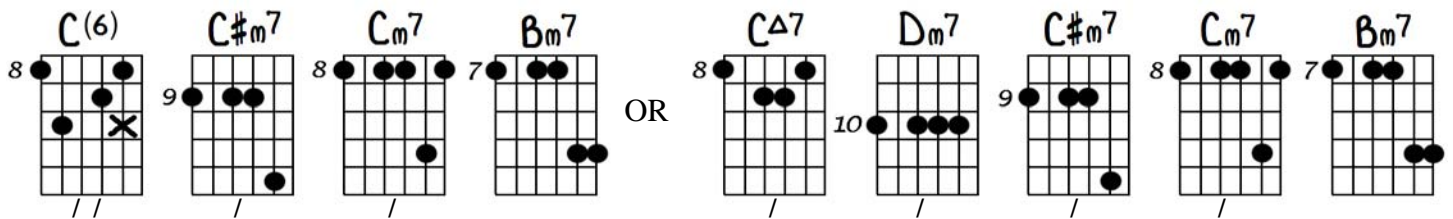
Example: Given: G – C
 //// ////



Notice in all the examples given so far on this page that the *first* chord always has a close relation to the original given chord (Bm7, for example, [above] for G – why does this work?). This is the norm, rather than the exception. Contrary motion is very effective with diatonic sounds, and you will get a separate series of studies on this subject later.

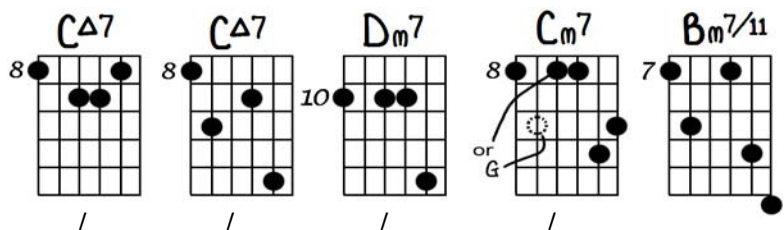
10) The 1/2 Step Embellishment concept (remember what that is?) can be carried back further.

Examples: given: C Bm7
 ////



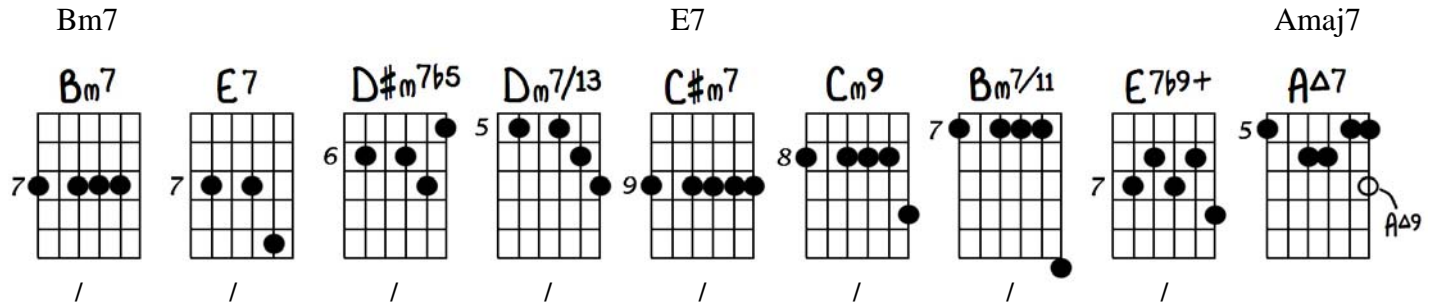
When, as in these examples, there is more than one 1/2 step embellishment used, this technique will be referred to as **Parallel Embellishment**.

Parallel embellishment does not have to use only 1/2 step movement:



Sometimes you might wish to mix the quality of the chords involved (you will learn, in more detail, how to do this as you become familiar with more progressions) in parallel embellishment.

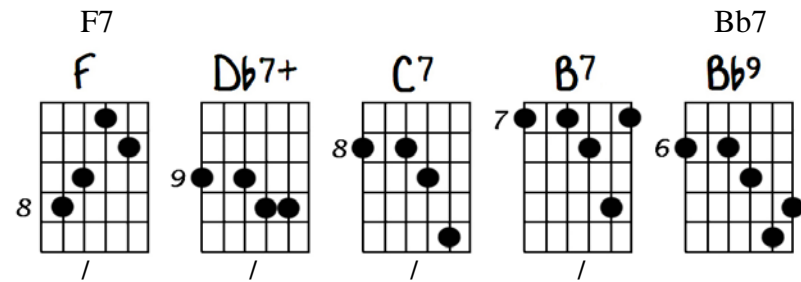
Given:



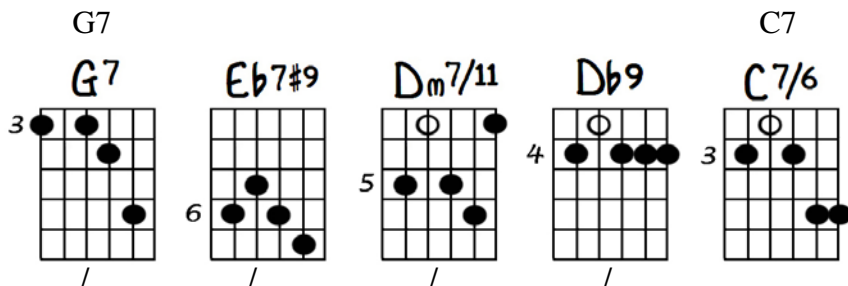
This passage could also be analyzed as being derived totally from back-cycling and b5th substitution principles. Try to figure out why.

Here are two more examples. Notice how contrary motion heightens the pull to the last chord and makes it very satisfying.

Given:



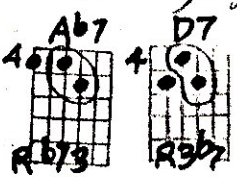
Given:



The CROSS-CYCLE OR b5th SUBSTITUTION PRINCIPLE

A sometimes used substitution principle in modern harmony is to replace any dominant 7th type chord with another dominant 7th type chord, but whose root is a b5th higher. Example: given Am7 D7 G you could try playing Am7 Ab13 G7. As to why this type of substitution works, observe:

- ① The most important notes in a dominant 7th chord (termed its ESSENCE) are its 3RD and its b7th.
- ② The ESSENCES of dominant 7th chords whose roots are a b5th apart are, amazingly enough, the same. Notice:



The 3RD + b7th of Ab7 are C + Gb; the 3RD + b7th of D7 are F# + C. Since Gb + F# sound the same on the guitar (and all tempered-tuning instruments), the essences of D7 + Ab7 are virtually the same. Because the essences of these chords whose roots are a b5th apart are the same, theoretically, you might say that any extensions or altered chords should work for each other in this b5th relationship.

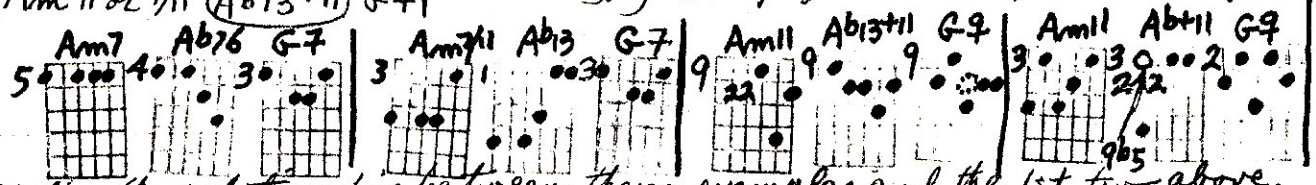
However, many of these sound poor or out of place, so some suggestions on the more tasty substitutions might prove helpful:

Taking the normal ii7 V7 I progression in G as a vehicle, instead of just playing Am7 D7 G, try the following substitutions:

Am7 (Ab7/b) G7 | Am9 (Ab9) G7 | Am7/11 (Ab13) G7 | Am11 (Ab9b5 or +11) G7 |

Am11 or 7/11 (Ab13 +11) G7 |

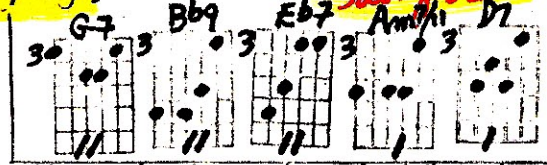
Try these physical examples of some of the ideas:



Noting the relationship between these examples and the 1st two above. This gives us a clue into the effect of the b5th substitution principle in many cases; thru observation + experimentation it has been found that the MAJOR SCALE EXTENDED DOMINANTS + the OVERTONE DOMINANTS are usually the best choices for use in the b5th SUBSTITUTION PRINCIPLE, and the effect is similar to using an ALTERED DOMINANT type on the original chord.

Sometimes because of the "pull" of a certain b5th SUBSTITUTE, a major type chord is substituted instead of a dom 7th type. The most frequent degree for this is on the bIII7 to bVII - OBSERVE: given G E7 Am7 (or A7) D7 you might play: bIII7 (Bb9) bVII7 (Eb7) D7. *M7 can be substituted for*

Due to BACK-CYCLING, m7 chords sometimes find their way into a progression as a b5th substitute -> COMPARE:



Notice that the "melody" of the substitute chords (Fm9 Bb13 Eb7) does not clash with the original "melody", and the key in general. Unfortunately, when trying to apply the b5th substitutions to songs you will find that more often than not a chord will clash with the melody, or will sound forced or contrived. The b5th principle should be treated with reverence + respect, in this man's opinion, because on those rare occasions when it fits perfectly, it is like a breath of fresh air; but it should never be used just for the sake of using it, so that one can say to himself or others "Look here, I'm using the b5th principle." After all, the whole idea in music is to find beautiful sounds, right?, not to play intellectual games to show how much we know or how clever we are. The only reason for these sermon-like comments, is that most students, upon learning the b5th principle, tend to go ape with it + force it where it doesn't fit.

⑥ Chords whose roots are a 3rd apart often have some notes in common, sometimes many, and once in awhile, even identical notes. This can lead to some interesting substitutions, some of the more common of which are as follows:

ALL SUBSTITUTIONS DON'T WORK WELL ALL THE TIME - TRIAL + ERROR WILL BE YOUR TEACHER!

① A major type chord can be replaced with a m7th type chord whose root is a minor 3rd lower (it acts like a vi in relation to the major chord it is replacing) or a major 3rd higher (it acts like a iii). Examples: C7 may be replaced with Am7 or Em7; A6 may be replaced with Fm9 or Cm7 Fm7.

② A m7th type chord can be replaced (preceded or followed) with a major type chord whose root is a major 3rd lower or a minor 3rd higher. Examples: Am7 can be replaced with F/9 or C7; Em7 can be replaced with C or G7.

③ A m7b5 type chord can be replaced (preceded or followed) with a dominant 7th type chord whose root is a major 3rd lower or a minor type chord whose root is a minor 3rd higher. Examples: Bm7b5 can be replaced with G13 or Dm7 or Dm9 G9; Em7b5 can be replaced with C7b9 or Gm b9 or Gm7/11 C13.

You will be seeing all these principles at work in the back-up arrangements of songs you'll be working on, so don't worry about memorizing all this just yet; just browse and remember that this type of thinking exists, and by referring back to it occasionally, as you'll have to in order to complete certain assignments, it will sink in.

④ This one is more rare: a dom. 7th type chord can be replaced with a minor 7b5 type chord whose root is a major 3rd higher. This is effective in the following situation mainly:

Given: Dm7 G7 C III Dm7 G7 C → SUBSTITUTES:

100 Dm7 9 G7 8 C III 5 Dm7 3 G7 3 C7 → F7 Bm7b5 Em7 Am7 Dm7 G7 3 C7

ii7 V7 I7 ii7 V7 I7 → IV7 vii7 iii7 vi7 ii7 V7 I7

All of the above principles fall under the heading of what we will call **3RD SUBSTITUTION**. Half-step embellishment and back-cycling are forms of **CHORD ADDITION** while 65th & 3rd substitutions are forms of **CHORD SUBSTITUTION**. Remember that when you do something like play G9 for G7 or C7 for C, this is referred to on these pages as **CHORD ENRICHMENT**.

⑦ Remember about companion dom 7th's + m7th's, such as D7 and Am7 types? One reason that they are companions is that they have quite a few common tones - compare the notes in Am7 and D9 for instance, now compare Am6 and D9. We can derive a few substitution principles from this information:

① Any m6 type chord can be replaced with a dominant 7th type chord (especially 9th's, 13th's, 9b5's, +11's and 13+11's) whose root is a 4th higher.

② Any m7 type chord can be replaced (or followed) with a dom. 7sus type chord whose root is a 4th higher. Compare: Fm7 ↔ B11, Fm7 ↔ B7sus, Dm7 ↔ G11

③ A little less commonly useable: Any m7 type chord can be followed (or replaced) with a dom. 7th type chord whose root is a 4th higher (or vice versa).

These principles will all be referred to as **COMPANION DOMINANT SUBSTITUTION**. (For the categorizers - Companion dom. substit. is a branch of common tone substitution which is a branch of chord substitution which is a branch of harmonic improvement which is a branch of music which is a branch of life.)

HARMONIC IMPROVEMENT - Page 5

8) Any min7 type chord may be replaced with a dom. 7th type chord on the same root or vice versa. Examples: A9 for Am7 or Am7 for A9. Even though a dom. 7th type and a minor 7th type can have many notes in common, there seems to be a great difference in their color or effect on the ear (since the only main difference between the 2 types is the 3rd or b3rd [13567 vs. 1b3567] we have to assume that the 3rd is a very special note to human beings), so be careful; as usual, experimentation is going to help you a lot.

9) A chord may be preceded with other chords in its own key, especially with chords whose roots are in scalewise order → EXAMPLE: Given: Am7 D7, you might play C7 Bm7 Am7 D7 or you could "squeeze" the Am7 into the next measure: C7 Bm7 Am7 D7. Another example: Given G C, you might play G7 Am7 Bm7 C7. Notice that the added chords can be in the same measure as the chord they precede or in the previous one. This principle will be referred to as (DIATONIC) SCALEWISE EMBELLISHMENT (abbreviated SW EMB.)

Here is an example of DIATONIC EMBELLISHMENT that uses chords whose roots are not in scalewise order → Given: G C → Substitute: G7 D9 G7 C7

Diatonic sounds are also effective with "leaps" in the bass → Example: Given: Bm7 G7 Am7 Bm7 C7

The big feature in this type of sound is the bass movement.

Notice in all the examples given so far on this page, that the first chord always has a close relation to the original, given chord (Bm7, for example, at left, for G - why does this work?). This is the norm, rather than the exception.

Contrary motion is very effective with diatonic sounds, and you will get a separate series of studies on this subject later.

10) The 1/2-step embellishment concept (remember what that is?) can be carried back further. Examples:

Given: C Bm7

When, as in these examples, there is more than one 1/2 step embel. used, this technique will be referred to as PARALLEL EMBELLISHMENT.

Parallel embellishment does not have to use only 1/2 step movement:

WHOLE-STEP

Sometimes you might wish to mix the quality of the chords involved (you will learn, in more detail, how to do this as you become familiar with more progressions) in parallel embel.:

Given: Bm7 E7

This passage could also be analyzed as being derived totally from back-cycling + b5th subit. principles. Try to figure out why.

Given: F Bb7

Here are two more examples. Notice how contrary motion heightens the pull to the last chord and makes it very satisfying.