

hey, it's  
kids!

# SPARKY THE MUSIC THEORY DOG!



**Q:** Dear Sparky:  
I understand pitch class sets, normal form and prime form, but are there other ways to describe a chord using set theory?

-G.L., Corona del Mar, CA

**A: WOOF!\***

**\*TRANSLATION:** BECAUSE **SET THEORY** IS PRIMARILY INTERESTED IN THE **INTERVALS** WHICH MAKE UP A CHORD, **PRIME FORM** IS USUALLY THE BEST WAY TO CATEGORIZE CHORDS USING SET THEORY... BUT THERE ARE **OTHER WAYS** THEORISTS USE TO DESCRIBE SETS IN THEIR PRIME FORM!

**HOWARD HANSON**, ONE OF THE FIRST PROPONENTS OF SET THEORY, CAME UP WITH A **CODE** WHICH COUNTED EACH TYPE OF **BASIC INTERVAL**, ORDERED FROM **CONSONANCE** TO **DISSONANCE**:

P4	M3	m3	M2	m2	TT
P5	m6	M6	m7	M7	
P	M	N	S	D	T

[0,3,4,7] = PM<sup>2</sup>N<sup>2</sup>D[0,1,2,6] = PMSD<sup>2</sup>T

TO FIGURE OUT THE **HANSON ANALYSIS**, LIST THE LETTERS IN THIS ORDER, OMITTING ANY INTERVALS NOT PRESENT AND USING SUPERSCRIPED NUMBERS TO SHOW DUPLICATES.

YOU COULD USE A **MNEMONIC** TO REMEMBER THE ORDER... LIKE "PLEASE MAKE NICK STOP DOING THAT"!

WAIT...  
DOING  
WHAT?

**HANSON ANALYSIS:**

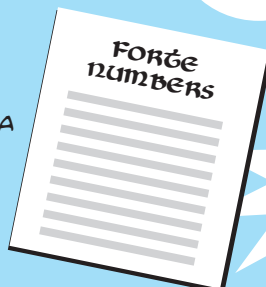
PDT

**TWENTIETH-CENTURY THEORIST ALLEN FORTE** FIGURED THAT SINCE THERE WAS A FINITE NUMBER OF POSSIBLE SETS, SOMEONE OUGHT TO **CATALOG THEM ALL!**

OF COURSE, THAT SOMEONE WAS **ALLEN FORTE**, WHO CAME UP WITH THE SYSTEM OF **FORTE NUMBERS**: A UNIQUE NUMBER FOR EACH AND EVERY POSSIBLE SET.

HOW DO YOU FIGURE OUT A SET'S **FORTE NUMBER**?

**STEP ONE: LOOK IT UP ON THE CHART.**

**FORTE NUMBER:**

3-5

IN HIS CHART, FORTE LABELED SETS WHICH HAD DIFFERENT **PRIME FORMS** BUT THE SAME **INTERVAL VECTOR** WITH A "Z". LIKE **4Z-15** AND **4Z-29**, WHICH ARE BOTH CALLED **ALL-INTERVAL TETRACHORDS...** SINCE THEY BOTH HAVE THE **INTERVAL VECTOR (1,1,1,1,1,1)!**

THERE IS  
NO STEP  
TWO!

**NOWADAYS**, MOST THEORISTS EXPRESS THIS CONCEPT IN A MORE **MATHEMATICAL** WAY, USING WHAT WE CALL AN **INTERVAL VECTOR**:

m2	M2	m3	M3	P4	TT
M7	m7	M6	m6	P5	
(	#	#	#	#	#)

[0,3,4,7] = (102210)

[0,1,2,6] = (210111)

**INTERVAL VECTOR:**

(100011)



[0,1,6]

## DOING STUFF THE SPARKY WAY IS ALWAYS FUN!