

Understanding pattern stress, pattern flow, and chart motifs

Wiosna / Shoegazer (December 18, 2021)

Introduction

A friend of mine told me to write about how I chart and what goes through my mind whenever I chart. I personally don't feel that the things that go through my mind while I chart are particularly relatable, but that friend of mine felt that any companion piece that explains why someone does the things that they do for any form of art is useful for a community to grow. I more or less agreed with them, so I started writing this essay because of what they said.

That said, what I wrote ended up being less of a "how I chart" and more about a few things that I focus on while I chart. I guess it's mostly my fault as someone who miserably aspires to be an academic and a teacher. Yet, I still felt that the concepts I had in mind were also quite complex and needed a lot of explanation, and it helped that the concepts were applicable to most people's charting in general. So writing all of this didn't feel all that alienating to me.

However, I don't wish to purport to be any authority on the subjects that I'm talking about. My elaboration on concepts such as pattern "flow" and motifs are based on my experiences of charting and my interpretations of how others have charted in various rhythm games. keyboard or pad.

In this essay, I will discuss more about two concepts that I have focused a lot on over the past year: pattern stress and building motifs. Pattern stress, I think, is a big component of pattern "flow". I think both concepts are connected since a good motif requires a good understanding of pattern stress, and pattern stress is not very valuable in itself.

This essay is targeted mostly towards intermediate to advanced charters. I don't think a lot of this is easily understood by newer charters because of how much I refer to specific patterns and more abstract concepts. But if someone new is able to pick up something from this, then that's great. My purpose of writing this essay is to try to give a perspective on charting that is more player-oriented than most.

My charting background

I found these two aforementioned concepts to be interesting and applicable to my charts for two reasons.

The first reason is that I'm tonedeaf; I have many issues saying whether a note is higher or lower. More specifically, I wouldn't be able to tell you whether a note is

higher or lower if the pitch difference between two notes is within 3 semitones of each other. This eliminates pitch relevance as a charting technique for me.

Pitch relevance is a technique that is used to position notes based on the pitch of the sound that the note corresponds to. Higher notes are usually placed on the right two columns, while lower notes are typically placed on the left two columns.

I've never quite understood the use of pitch relevance for a really long time. What was the point of pitch relevance if the notes are flying too quickly for us to notice? I think it wasn't until I was charting in 2016 when I found out why pitch relevance is useful. From my observations, the main purpose of pitch relevance is to **organise patterns in charts based on the musical phrases of a song**. For example, you can organise patterns into sets of 3 notes through pitch relevance if a guitarist is playing triplets in a guitar solo. Another (and arguably more effective) example is that you can also accentuate repeated phrases by using the same pattern over and over.

For a really long time, not being able to apply or understand pitch relevance alienated me from many charters across every rhythm game I was in. It still alienates me today, but I'm slowly coming to terms with it. I think I finally came to terms with my inability to PR by realizing that *pitch relevance is far from the only technique that allows you to repeat and organise rhythms based on music*. All you need to do is to properly outline the phrases and motifs in music, and you can probably figure out the groups of sounds that you have to organise.

While I can't distinguish between a higher note and a lower note well, I can, however, tell you whether a note sounds different from another. And usually that's enough to organise sounds into distinct rhythms or phrases. And given my previous charting experience, I could then translate these phrases into patterns that represent the song.

How I organise patterns is often based on how phrases or bars of music sound different in terms of timbre or feeling, rather than something like pitch. But I didn't have a mentor or anything to guide me on how to construct patterns, so I had to build an intuition of building patterns and motifs. I think, given my odd musical trajectory, I had an idiosyncratic way of using patterns as motifs – I focused a lot more on kinaesthetic feel than most charters, rather than pitch or visual appearance. I believe that difference is the main thing that distinguished me from other charters across many rhythm games.

The second reason is that I think that the idea of "pattern flow" is really interesting, and I've always wanted to explore that idea. My recent charts focus a lot on

kinaesthetic feel, and I've been trying to figure out how players respond to certain patterns or overall chart textures.

For me, the target audience of a chart is always the player, and I wanted to understand how players play through a chart in a systematic way. The issue is that players always give feedback that is based on their intuition, and their feedback is not very consistent. While the feedback has helped to improve the chart that they're commenting on, the feedback isn't very useful in understanding how players feel patterns. Over the past two years, I've been trying to build my understanding of how players feel out patterns through two avenues: gathering players' feedback and my personal experience as a former high-level keyboard rhythm game player.

I think a player's experience is generally more valuable than a charter's experience in this respect. I think charters tend to have a different understanding of how charts work and play out – I think they focus a bit more on visual elements than players, and players focus more on kinaesthetic elements than charters. There are many reasons for this, but I think one of the main reasons is that players can only understand a chart by playing, while charters have various ways of understanding a chart. This heavy focus on gameplay is what led me to gather feedback from mostly players. I feel that getting player feedback is the best way of truly understanding how players understand rhythm, motif, and pattern feel.

All of this isn't to say that my experience with understanding pattern feel is necessarily correct or most representative of players. I've only gotten feedback from a fairly small group of players, but their feedback over years was enough for me to build an understanding that matched my and other players' experiences of how patterns and rhythms feel to us.

Disclaimer

Obviously, reading through all of this won't make you a good charter or mimic my charting style. I use certain (strings of) patterns to capture phrases and motifs because I'm most comfortable with using them, and you will probably like different patterns more than others as you develop your charting acumen.

A lot of charting is very intuitive; while there is a lot of deliberation in the process, the foundation of how to follow music granularly is quite automatic. Like many things in life, practice is the best method of getting better at charting.

I will also be using Stepmania/Eterna's ways of denoting rhythms here, so I'll use terms like 4ths, 8ths, 16ths. For an osu!mania equivalent, divide the values by 4. 4ths would be 1/1s, 8ths would be 1/2s, and 16ths would be 1/4s. Something like 3/16ths on

Etterna would be 3/4s on osu!mania. All editor screenshots are on upscroll.

Pattern stress

I consider pattern stress to be one of the most important parts in formulating a chart. Pattern stress is basically the degree of physical tension that a player gets from hitting some pattern. It is a big part of what gives a chart its texture and overall feel. It is what allows charters to highlight and match specific textures or energy of a motif in a song without changing the layering of a chart.

I consider patterns that are tense to be “stressful”, and patterns with little to no pattern stress to be “weak”. I personally describe stressful patterns as sharp, punchy, and heavy to play through. In contrast, weak patterns feel flowy, rounded, and light. Stressful patterns are, by nature, also harder to play than weaker patterns. Not only do weaker patterns require less effort to hit, but they can also be cheated/pattern manipulated more easily.

Even though weak patterns are easier to hit, it doesn't mean that weak patterns are inherently bad. Far from it, weak patterns definitely have their uses. For instance, you have to use weak patterns for really fast rhythms to keep a reasonable difficulty curve. You need to have both weak and stressful patterns for a holistically engaging and balanced experience in a chart.

That said, weak patterns are used differently than strong patterns; weak patterns feel much more airy to hit than stressful patterns of the same speed. I consider this to be a plus: you can take advantage of those different pattern textures to give different connotations to different rhythms or elements in a song.

So the question then becomes, what makes a stressful pattern? I outlined three elements that would make any pattern stressful:

- Stress points
- Hand bias over time
- Finger bias over time

I will talk about stress points first before moving on to hand/finger bias over time. Stress points is a term that I made, so it will require more elaboration, but I'm sure it will be ideas and theories that any player would have experienced.

Stress points

Stress points are specific patterns that force a lot of straining kinaesthetic motion from players. There are two types of motions that a player does: wrist/finger rotation and wrist jacking. Those motions are what make up the motions required to hit any

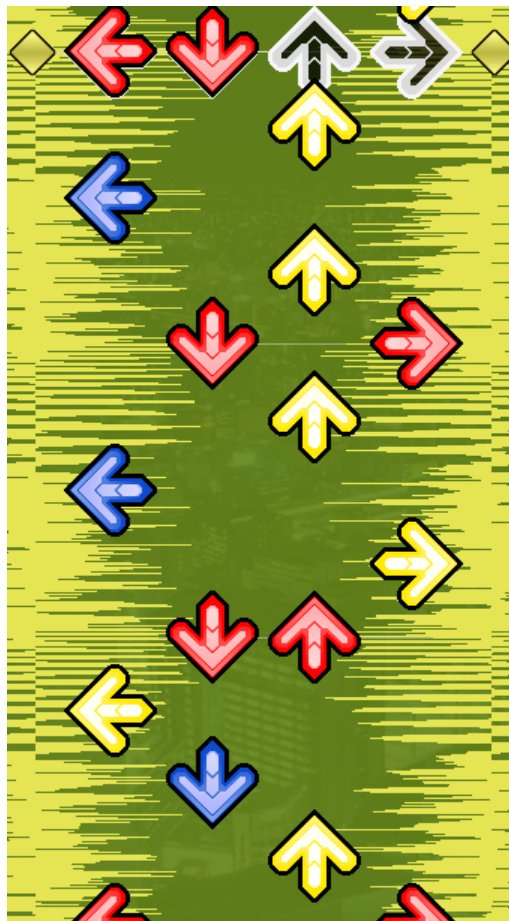
pattern in the game, but forcing a player to do the same motions over and over can cause a lot of stress. A pattern that forces a player to use the same motions over and over are what I would consider “stress points”.

Some tangible examples of a pattern that can be stressful in a 16th stream include:

- 4-note two handed 16th minitrills (moves both wrists twice over one bar)
- 3-note one handed 16th minitrills (rotates wrist twice over one bar)

I use “points” rather than “patterns” because these patterns are often quite short – usually 1-1.5 beats long, rarely 2 beats long. Yet, these “points” are the parts that players will find particularly stressful to hit.

There are obviously patterns that are more stressful than the ones mentioned, like 6-note two handed trills or 5-note one handed trills. My list is not meant to be an exhaustive list. The stress points that I brought up are examples that I consider to be moderately stressful. There are obviously stress points that are more stressful than others, but the two stress points I mentioned are generally the most applicable to charting from my experience.



This pattern above contains a 4-note two handed minitrill going into a 3-note one handed minitrill, then a small break (14), and then another 3-note one handed minitrill but on a different hand. The patterns that I pointed out are stress points, albeit in different ways.

While two stress points mentioned above are the stress points that you will likely use the most, they are not the only two you would face. In jack-oriented patterns, for instance, you will find patterns that are stressful for a different reason.

One example would be the contrast between 1[12] and 1[13]. When a player hits a 1[12] or 2[12] pattern, they feel more stress hitting the [12] compared to a 1[13] pattern or even a [12]1 pattern. For me, a 1[13] pattern feels very slippery and smooth, while a 1[12] pattern feels very sharp and tense.

To explain this phenomenon, we have to understand that there are many ways of hitting a single note, but there are fewer ways of hitting a one-handed chord. After we hit the single in the 1[12] pattern, we generally have to hit the one-handed chord by changing technique, causing stress. The reason [12]1 doesn't feel stressful is that every way of hitting a one-handed chord can also be used to hit a single note without any change in technique.

It's also possible to create multiple stress points at the same time. You would encounter multiple stress points at the same timestamp when patterns are quite tense. For example, a [34]2[13]2[34] pattern can create a 3-note one hand minitrill and a 3-note 8th jack at the same time. Note that the degree of stress on each hand from the pattern matters just as much as the degree of stress itself, especially when you're dealing with denser patterns. I'll touch more on this in the hand bias/finger bias section.

The general absence of stress points would usually create weak patterns. I find stress points to be most useful for creating short bursts (1 beat long or shorter) of pattern stress. So if I want to emphasise a very short rhythm, I would use stress points.

Different types of pattern stress

There are multiple dimensions to pattern stress. There is level of stress, there is the location of stress (is the pattern stressful on the left hand? Index finger? etc.), and there is also the type of pattern stress. Stress points can be stressful for different reasons, and it's important to take those reasons into account while charting.

I'll bring up two types of pattern stress here: Stress from one-hand trilling, and stress from two-hand trilling. A two handed trill is stressful because you're moving your wrist up and down, while a one handed trill is straining because you're rotating your

wrists or alternating your fingers. Those require two different motions and are stressful patterns in different ways.

The fact that there are multiple types of pattern stress is a good thing. Similar to how you can place notes on different notes to express different pitches in music, you can take advantage of the different types of pattern stress in at least two ways:

- 1) You can reserve one type of stress point for some texture of the song, or
- 2) You can alternate between the two types of stress points for one continuous rhythm to make the pattern feel more engaging and fluent to play.

I'll elaborate more on the second point: from my personal experience, I think a rhythm feels exciting to play when your hands are doing multiple types of patterns over a measure or two. It's hard to explain why, but it feels as if I'm doing a lot more than I actually am, since every part of my hand is being used in various ways. My wrists are constantly in motion, my fingers are constantly active, and I feel my hand moving a lot in general. The experience feels active and engaging.

The pattern would also feel more fluent because the difficulty of the pattern would feel relatively balanced, not taking stamina into account. Patterns that require you to do the same motion over and over again require a lot of control; it is really easy to lose sight of where you are while reading and even on your keys if the patterns repeat enough. Patterns also get exponentially more straining as you repeat the same motions over and over on the same hands/fingers and in the same way, so alternating between hand motions helps a lot with avoiding this exponential difficulty curve.

Example chart: [Pendulum - Axle Grinder](#)

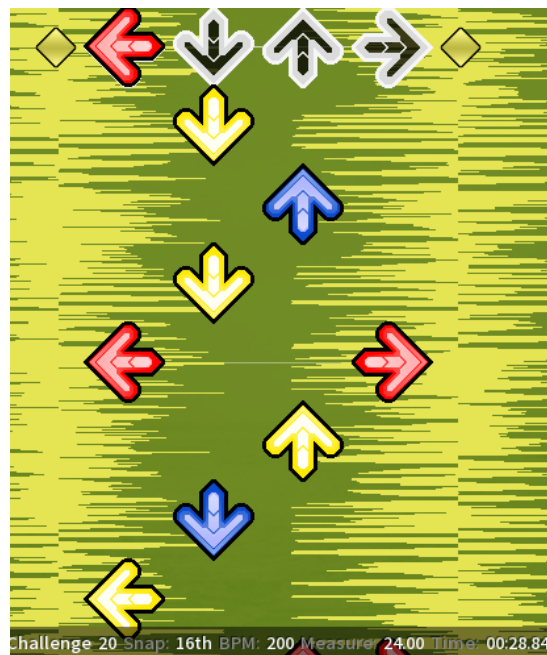
In the climax of Axle Grinder, the song's percussion repeats the same kick/snare rhythm but with occasional cymbals layered on top of the rhythm. Patterns that correspond to the kick/snare rhythm are much more two-hand trilly (though it has some OH trilly patterns as well) [1:59 - 2:04, 2:10 - 2:15], while the patterns that correspond to cymbals use very explicit 4-note one hand minitrill patterns [2:04 - 2:10, 2:15 - 2:21]. This is an example of how you can contrast different textures in the music with different patterns.

Hand bias/finger bias

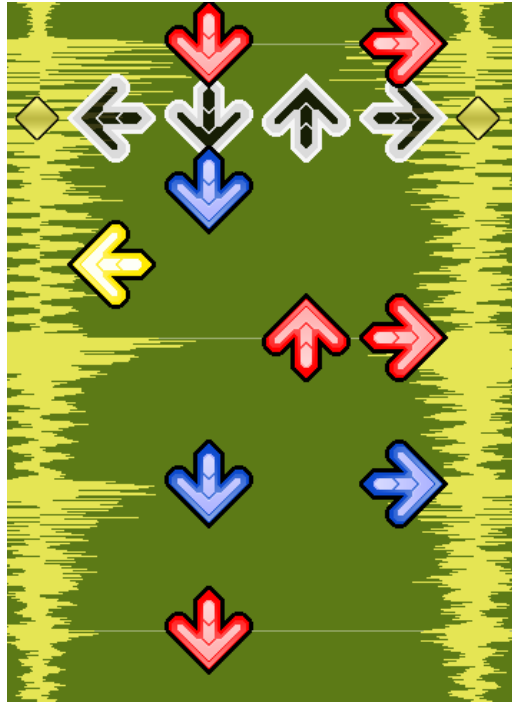
Stress points are not the only way of generating pattern stress. Hand bias or finger bias refers to an extended period where players have to hit patterns that are predominantly one hand or finger. There is this misconception that we should avoid hand bias at all costs. While that heuristic might be useful for beginner charters, hand bias or finger bias can be tastefully used to emphasise certain musical phrases if done properly. And hand bias/finger bias causes an effect that is quite different from just stress points.

The interesting thing behind hand bias or finger bias is that patterns do not have to be inherently straining to be stressful. As long as you force the player to hit patterns that are demanding on one hand or finger for a while, the pattern will feel stressful towards the end. One example would be a constant use of one-handed gallops (e.g. the use of 34/43 over 4 beats) or a constant use of minijacks on the same finger. These patterns are stressful because you have to use the same hand or finger a lot for a long period of time.

I personally find hand bias and finger bias to be most useful when I want to create some sort of tension over a longer period of time (e.g. 2-4 beats) rather than 1 full beat. Examples of times where I might need tension over a long period of time is if a motif is melodic and quite long (e.g. an ascending piano roll or synth phrase), and I want to capture this motif by using ascending patterns. For cases like this, I would use patterns that are quite right-hand biased to force hand bias during that phrase and give it an ascending feeling.



The screenshot above is an example of deliberate hand bias. To capture a descending piano roll here, I use a pattern that is fairly left hand biased. In the pattern, the left hand has to hit 12, 21 and then 21 again over 2 beats of 16ths (8 chords). This makes the pattern fairly left-hand biased.



The screenshot above is an example of deliberate finger and hand bias. The repeated minijacks on the same column forces stress on the left index finger (column 2), and there is also additional stress on the left hand from the 21 gallop.

I would consider this kind of stress to generate the same types of pattern stress that you could attain through stress points, though I typically use hand/finger bias in longer motifs and phrases rather than specific sounds in a song. For specific sounds or short phrases, I would use stress points.

Uses of pattern stress

As you might expect, pattern stress is a great tool to emphasise particularly strong or weak parts of the song. Stressful patterns specifically are really helpful in giving the chart a holistically punchy feel, which I personally really like in charts. I personally use patterns that are stressful often in my charts to make the chart feel impactful as a whole.

But you have to use stressful patterns cautiously, these stressful patterns should always be counterbalanced with weak patterns for the stressful patterns to stand out. There are also other reasons to ensure a balance between stressful and weaker patterns:

- 1) Patterns that are stressful all the time can cause difficulty spikes that you might not have anticipated. This is true even if you're using stressful patterns that are stressful for different reasons. Players need rest points, and weak patterns work perfectly as rest points.
- 2) A mixture of patterns makes a chart interesting and holistically fluent to play,

- 3) and using stressful patterns all the time loses their impact since there is nothing to contrast it with.

How to balance stressful patterns and weak patterns wildly depends on the context and atmosphere of a section or song. As a personal rule of thumb, assuming that you're placing 16ths (4 notes or chords per beat), I use weak patterns for 1 beat every 4-8 beats if the patterns are moderately stressful and the section is relatively high energy. I use weak patterns for 1 beat every 2 beats if the section is lower energy. If a section is really high energy and short, I might just use stressful patterns entirely to make the high-energy section memorable.

I also tend to alternate between wrist rotation and wrist jacking motions every 1-2 beats for stressful patterns unless there is a repeating motif that I really want to emphasise. This is to ensure that the patterns are both engaging and fluent to play, while still being punchy to play. My rules of thumb are obviously far from a hard science, but I don't think that it should be a hard science to begin with. Hard rules in charting stifle charting diversity, after all. Always experiment to figure out what works best for you.

Example chart: [LV. 4 - -273.15 \(Absolute Zero\)](#)

The chorus [1:08 - 1:28, 1:49 - 2:09] uses mostly stressful patterns -- one handed and two handed 16th minitrills, but the stressful patterns are broken up by small breaks in-between the 16th jumpstreams. This is an example of a balance between stressful patterns and breaks.

In contrast, the climax of the song [2:09 - end] uses almost entirely stressful patterns with very few weak patterns in-between. Patterns like [23]421 and [14]123 work as weak patterns in the climax, but they're very infrequent.

The section after the first chorus [1:29 - 1:39] has fairly low-energy synths, and the patterns alternate between a slightly stressful pattern (a 3-note two-handed trill) and a weak pattern (a roly pattern) every beat. This makes the section relaxing to play through, but not completely because of the stress points in the section.

How do certain patterns feel to players?

This is a difficult question to answer, and I'm basing a lot of this on my experience playtesting a lot of charts. I personally don't like using terms like "fluent" or "flows well" to describe specific patterns, since I find a lot of patterns to be fluent to play. It's just that patterns are fluent for different reasons. There are indeed patterns that don't feel fluent, like ones that have notable gaps between rhythms or patterns that alternate between wrist rotation and wrist jacking very erratically, but they are relatively rare.

Here is a small table of patterns and what “texture” I get from them. In the table, I also give a description for each pattern. This is assuming that all of these are 16ths at a reasonably high BPM (~210 if your stream speed cap is about 250), unless stated otherwise.

Pattern	Pattern feel and description
<u>Mono-directional rolls (e.g. 12341234/43214321)</u>	Flowy and slippery. Would be a pain to maintain control over long periods because of a lack of stress points like minijacks or fast OH minitrills. Ideal for very fast and short rhythms (~280-300bpm) to ensure a smooth difficulty curve or as breaks from stressful patterns.
<u>Spin streams, roly patterns with no minijacks</u>	Flowy, less slippery than mono-directional rolls. These rolls stand to me because they tend to alternate roll directions a lot, which makes patterns feel a fair bit smoother. But the lack of minijacks still makes the chart feel a bit slippery. Ideal for fast rhythms to ensure a smooth difficulty curve.
Split roly streams	Sharp at low speeds (because you’re using your wrists), but very flowy and slippery at high speeds. A pain in the ass to maintain control over long periods because of a lack of stress points like minijacks or fast OH minitrills. Ideal for very fast streams to ensure a smooth difficulty curve.
<u>Split roly streams with hidden one hand minitrills</u>	Flowy and fairly slippery. The hidden OH trills from the triplet roll + single patterns are good anchors for me to keep track of where I am both visually and on my keys. Ideal for fast streams (~250-270bpm) to ensure a smooth difficulty curve. You can make the <u>OH minitrills more explicit by using straight up 121/434 patterns</u> and that would make the stream more tense, but I would use those in streams that are relatively slower. This is to

	ensure a more constant difficulty curve.
<u>Streams with regular 4-6 note 16th two handed trills (every 8 notes)</u>	Sharp and very stressful. My hands tense up really quickly after short periods (4+ measures) of these patterns. Should be broken up with rolly streams every 3-4 beats to avoid this tension. Good for emphasising short and moderately fast (~210bpm) motifs otherwise.
<u>Streams with regular 3-4 note 16th one hand trills (every 6-8 notes)</u>	Tense and very stressful. My hands tense up really quickly after short periods (4+ measures) of these patterns. Should be broken up with rolly streams every 3-4 beats to avoid this tension. Good for emphasising short and moderately fast motifs otherwise. I personally find 4-note one hand trills to be much more stressful than 3-note one hand trills.
<u>Streams that regularly alternate between 3-note two hand and one hand minitrills (every 4 notes)</u>	Active (tense and sharp) and moderately stressful. My hands tense up a lot after long periods (8+ measures) of these patterns, so it should be broken up with rolly streams every 6-7 beats to avoid this tension. Good for long and moderately fast rhythms.
<u>8th jumpgluts (consecutive doubles) with no 1[12] or 3[34] (or similar) pattern</u>	Very smooth but often slippery if used for long periods. Without much control I find my fingers flailing a lot trying to hit these kinds of gluts, but they are the easiest type of glut to hit. I only use these patterns for fast (~125bpm) long rhythms or just fast rhythms that call for jumpgluts in general.
<u>8th jumpgluts (consecutive doubles) with 1[12] or 3[34] (or similar) pattern every 4-6 chords</u>	Smooth and then sharp in those 1[12] patterns. I personally feel very comfortable hitting these kinds of gluts because there's a regular sharp anchor with the 1[12] patterns present.

	Great for moderately fast (~105bpm) long rhythms where jumpgluts have to be used, but it might be a bit much at faster speeds.
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Note that pattern feel is always going to be subjective for many reasons. One reason is that players' skill levels vary a lot, and the speed of the patterns will affect how players will hit those patterns. If the chart is very stamina draining and players have to hit stressful patterns nonstop (even when they're out of stamina), the chart would feel overwhelming and overdone. Conversely, if a player has much more stamina, the patterns might still feel stressful to play, but it feels much less overwhelming to play through.

Another reason is that players will find certain patterns to be less or more stressful than others. Some players might find 4-note two handed minitrills to be really stressful to hit, while the same players might find 4-note one handed minitrills quite smooth and light. For me, I find 4-note two handed minitrills to be fairly sharp but relaxing, but 4-note one handed minitrills are very stressful. Your skillset will subconsciously affect your pattern choices as well, so do keep your skillset in mind while you playtest your charts.

The effects of notable gaps between rhythms on pattern stress/flow (advanced)

In many charts, you will use various rhythms at many different speeds. You might use 4th rhythms, 8th rhythms, 16th rhythms, maybe the occasional 3/16th rhythm as well and 32nd rhythm as well. When we string and play all of these rhythms together, we will slow down and speed up as we move from hitting one rhythm to another. We might even find ourselves stopping our fingers before hitting another rhythm.

These accelerations and decelerations are things to consider while you chart. While players will feel the speed of a pattern or rhythm, players tend to feel stop-and-go motions of rhythms much more than the speed of the rhythms themselves. We generally find it easier to accelerate than to decelerate while playing, so I'll focus more on deceleration in this section.

Decelerations come from **notable** gaps between rhythms. The emphasis is on "notable", since, theoretically speaking, there are always gaps between every note in a rhythm all the time – a continuous 16th rhythm will always have a gap of $\frac{1}{4}$ of a beat, but we don't feel those gaps because the gaps are constant and therefore insignificant. Instead, we usually feel gaps if they are larger than the gaps that we are used to. As an analogy, you would feel your body jerk if a bus moves from 0km/h to

60km/h in 3 seconds. But you wouldn't feel much if a bus constantly moves at 60km/h, since there's no acceleration. The same principle applies to gaps.

If you have a lot of fast rhythms that are broken up by short but notable gaps, the start of each rhythm is going to feel very stressful to hit. This is because you have to decelerate and reaccelerate to hit those broken rhythms accurately. More specifically, broken rhythms are stressful to hit because you have little time to both decelerate and reaccelerate over short time periods. I consider this stress to be more of a "jerky" one rather than something sharp or tense, so this is a different type of stress from stress points or hand bias.

That said, if the breaks between rhythms are short enough, players can afford to skip decelerating altogether at the expense of losing a tiny bit of accuracy. If the gaps are very long, players would have a lot of time to decelerate and regain their composure, so subsequent patterns after the gap would not feel as stressful to hit.

Of course, the question of what makes for a short but noticeable gap varies a lot between person to person. From my personal experience, the "jerkiness" of a gap is based on the most common rhythm denominator of the last measure. Any gap that is larger than the gap that is naturally obtained through the mode rhythm would feel like a jerk. For example, if the rhythms in the past measure are primarily 8th rhythms with occasional 4-note 16th and 24th bursts, any gap that is longer than half a beat would feel like a stop.

The jerkiness that a gap would create resembles something like a bell-shaped curve; if the gap feels longer than a minimally notable gap, the pattern after the gap would feel more jerky, but only up to a certain point. Gaps that are longer than that point would make the pattern less jerky.

Example chart: [*leroy - ricky bobby*](#)

In the less frenzied sections of ricky bobby (e.g. 0:40 - 1:02, 1:52 - end), there are a lot of 16th (1/4) 2-note gallop patterns used in the chart. The ends of each gallop create a noticeable gap between the end of the gallop and the next note (bigger than an 8th or 1/2 beat, since the rhythm around the gallops is mostly 8ths), so players feel a stop after each gallop.

All of this is not to say that gaps are bad per se; many songs will create gaps in rhythms if you chart the songs literally, and these gaps can often make a chart feel exciting to play. In fact, I find that a lot of players enjoy rhythms with short but notable gaps between them. This is because these rhythms are dynamic but in a consistent way – it's why something like swing rhythms, syncopated patterns, or constant gallops feel so enjoyable to players.

Dealing with large or multiple gaps between rhythms

But charters often have to deal with the dilemma of whether some gap properly fits the texture of the rhythm or section that they're tackling. This is more pertinent in some types of dump charting, where charters often use bursts to capture certain vocals or bass wobbles.

But before I elaborate more on what I mean by this dilemma, I will preface by saying that I'm much more critical towards these kinds of dumps to begin with. Many charters do find these dumps to play well as they are, though I find many dumps of this style to be very frustrating to play. I might just be making a fuss over a relatively small issue, so take the rest of this section with a large grain of salt.

At least for me, in these dumps, a common problem is that some sections often feel too fragmented to hit, since there are too many notable gaps between bursts. This happens because these gaps between bursts create so many stop-and-go motions that it fails to correspond to the overall feel of the section. A similar problem is when the gaps between bursts are too long and fail to follow a high-energy section of a song.

You can usually ameliorate both aforementioned problems by making those gaps between rhythms shorter. You can either do this by making bursts longer or using ghost notes to fill the gaps between rhythms. For ghost notes, you can then follow the details in a section by patterning or using relatively faster ghost notes to follow those rhythms. The latter solution works because the gaps between ghost notes feel relatively much smaller than if you were to solely use bursts, so the section doesn't feel quite as fragmented as before.

Building motifs in charts

In most music, there are dominating themes or phrases in a song. While they might not be present in every part of the song, they are prevalent parts of sections in a song. These themes and phrases are called motifs.

If a song uses a certain motif over and over in a song, it would make sense that a chart would follow these motifs in some way as well. I call these "chart motifs", which usually refer to sets of patterns that correspond and typically repeat alongside the musical motifs in the song. It is important to note that if the song has variants of the motif, you should use variants of the chart motif as well.

However, just as a musical motif in a song is strong and catchy, the pattern should be strong in some way. But a musical motif is never consistently strong – there are still strong and weak points even within a motif. This is important, since using patterns that are stressful all the time is overly straining and frustrating to play through. A

good chart motif, just like a good musical motif, uses a balanced and tasteful mixture of stressful patterns and weak patterns.

I find motifs to be one of the most important elements in charting. This is because motifs are the easiest way of giving the chart a distinct identity, which in turn makes a chart memorable. Some of the most well-received charts by both charters and players in certain rhythm games (e.g. Finders Keepers and A Yodeler in Texas in FFR) heavily use fluent chart motifs and repetitions of these motifs throughout the entire song. These charts are remembered as clean, extremely exciting, and, above all, very memorable. This is despite the fact that the aforementioned songs are rhythmically very simple – music that usually doesn't make for exciting charts. Even if a motif is not present through an entire song, having distinct and repeated patterns throughout a chart will leave a big impression on players in some way.

Example chart: [Pegboard Nerds - Swamp Thing](#)

The most defining motif in the song is the banjo motif [0:08], and the song's entire structure hinges on this motif and variants of it. Similarly, this chart uses one specific pattern (with mirrored variants) and builds the entire chart around it. As the song uses variants of the banjo motif by breaking up the motif or adding bass wobbles over the motif, the pattern that corresponds to the motif stays mostly intact despite additional patterns being layered onto it. Examples of this include snares, bass wobbles and vocal samples being layered over the motif like in 0:14 - 0:36. Another example would be the broken up banjo motif at 0:50 - 1:12.

Motif construction

Building a chart motif, to me, is basically stringing patterns together into a memorable unit. This memorable unit must also correspond to the musical motif in the song in some way. Remember that a motif in a chart should correspond to a motif in the song as well.

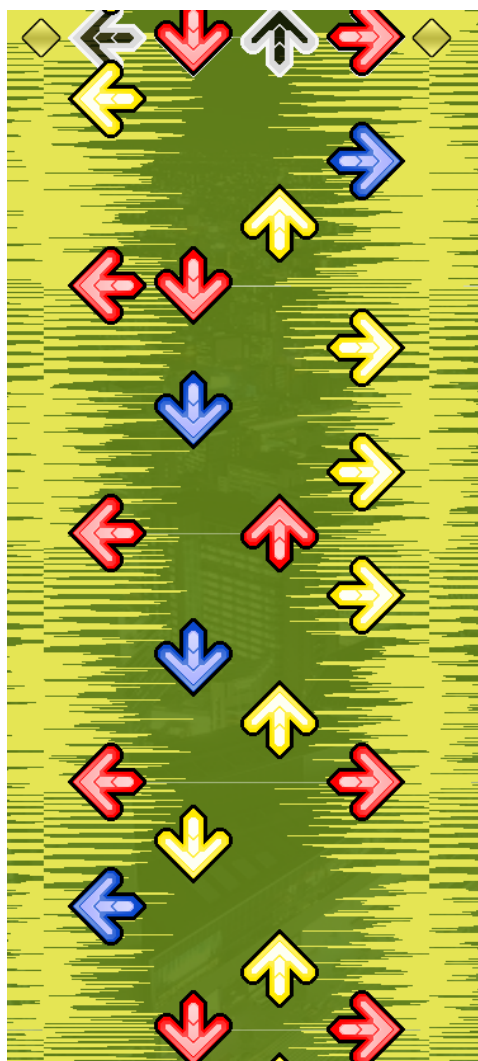
When you construct the patterns of a motif, it's important to take into consideration two things: how stressful the pattern is, and how long the pattern is. The degree of stress the pattern should align somewhat with the energy of a particular point in the musical motif, and the length of each pattern should appropriately correspond to each part of the motif.

When I construct a motif, I organise patterns based on two things: physiological motion and visual appearance. Physiological motion is a higher priority to me than visual appearance. If every sound in a musical motif is equally powerful, I usually create patterns of one beat a piece, since the musical content of each beat is usually different from one another in some way.

It's not always the case that every beat sounds different and functions independently from one another, however. There are some beats in a motif that are complementary with each other – when you listen to them, you feel like the beats are connected in some way. An example of this would be an ascending phrase that's around the same octave that lasts for 2 beats. I create patterns that last for two beats for those cases.

However, if there are more distinctive sounds in the motif and I'm layering multiple layers of sound, I would base the length of each pattern on that distinctive phrase or sounds in the motif. For example, if I'm layering a continuous 16th stream but there is a 3/16th synth rhythm going on, I would organise the 16th stream patterns into sets of 3 notes.

Using my chart for Danse Macabre as a reference, here is the motif in the chorus:



Each red note marks a new beat for reference. [The motif is 1 measure long, and you can hear and watch it here.](#)

I constructed the pattern in this way:

Beat 1: Start of motif, rolly pattern to indicate the start of motif

Beats 2 and 3: Beats sound connected, so I used a pattern that would cover both beats. I used a stressful [12]424[13]4 pattern here, with a 23 as a slight break for players.

Beat 4: End of motif. Beat 4 sounds slightly less connected from beat 3, so I made a 1-beat pattern here using a stressful [14]21 pattern (one handed minitrill). The last note (3) is used to give a little bit of stress to the start of every new motif (since it would create 3-note one handed minitrill on the other hand).

Beat 5: Start of motif, rolly pattern to indicate the start of motif.

Repetition

To me, repetition is one of the most important ideas that a charter should keep in mind whenever they create a chart. Repetition does various things: it could create hand and finger bias to emphasise repeated rhythms, or it can establish the connotation between some pattern and a musical motif. Establishing connotations is really important because players will get a strong semblance of structure in the chart, which makes a chart feel like it's tailor-made for the song.

When I say repetition, however, I don't just mean copy-pasted patterns. You can use mirrored variants or variants that invert the two columns on each hand. While I believe that the visual appearance of a pattern is important, keeping the same kinaesthetic effect of the pattern is much more important. This is because players feel patterns much more than they see patterns.

Example chart: [Marmalade butcher - Ushinahareru Runazuki](#)

Ushinahareru Runazuki is an interesting song in that, while a lot of the rhythms in the song are greatly syncopated and memorable individually, these rhythms repeat a lot like a conventional pop song.

As a result, A lot of rhythms in the song work as motifs in specific sections (though some motifs are more notable than others), so I took advantage of this by using more or less one set of kinaesthetic motions to correspond to each musical motif. Repeating each pattern really gives the player a distinguished feel for each section of the song. This is most prevalent in 0:09 - 0:18, 0:34 - 0:44, 2:49 - end and so on, where the repeated musical motifs are more blatant, but the idea of connotation is prevalent throughout all of the chart. The patterns here are often mirrored and inverted as well, so you can use more than just copy-paste to repeat motifs.

One main exception to this rule would be if the pattern that you're planning to repeat corresponds to a melodic motif, like a piano motif. Since pitch relevance is such a prominent part of charting in most rhythm games, copy-pasted patterns are

more apt for melodic motifs. It would feel a bit odd to many people for a melodic motif to have two patterns that are inversions of each other when pitch relevance is so commonly used in keyboard rhythm games.

This doesn't always apply though, and you have to take hand bias into account if you were to use just copy-pasted patterns for melodic motifs. Most of my charts don't just use copy-pasted patterns for melodic motifs, which does make the chart feel a bit less appropriate for the song. But I think the improvement in ergonomics outweighs that cost. You should always make your own cost-benefit analysis in that respect.

Obviously, repetition is not good per se, for two reasons. The first reason is that you can misuse repetition. The usual goal of repetition is to establish a chart structure by associating one pattern with some rhythm or motif in the song. If you use the same pattern over and over for multiple motifs or no repeated rhythm at all, the chart would feel both arbitrary and tedious to play through. I personally consider a misuse of repetition in this regard to be worse than not having repetition at all – the repeated patterns mislead the player, which makes for a frustrating experience.

The other reason is that repetition only works if the patterns that you repeat are notable enough to begin with. I use “notable” rather than “stressful” here, because even weak patterns can be notable if they're contrasted with a section that's mostly made of stressful patterns. If the pattern doesn't seem to kinaesthetically contrast much with the rest of the chart, the repetition only becomes visual, and players will have to put in a lot of effort into noticing that there is repetition going on. Motifs should be as self-evident as possible.

For me, I generally use distinctive and stressful patterns if I want to repeat them, though the patterns can be a little bit less stressful if the pattern that I'm planning on repeating is quite long and rhythmically distinctive. Though remember that you don't necessarily have to use stressful patterns as a motif – the motif just needs to contrast from the rest of the section. For example, I can use more rolly or OH-trilly patterns as motifs if most of the chart uses stressful patterns that stem from two-hand trilling and minijacks.

Visual cues for motifs in continuous rhythms (advanced)

In most charts, motifs are distinguished by their distinct patterns and their clear starts and ends. This is especially true in charts with very few continuous rhythms, where the gaps between rhythms help players figure out when a motif starts and ends. Continuous rhythms in this case refer to very long (e.g. longer than 2 measures) constant rhythms, like a 4-measure 16th stream or 16th jumpstream.

The main exception to this observation is when the motifs are present *within* a continuous rhythm. An example of this would be a specific stream pattern (e.g. 12132434) hidden within a much longer stream. This is one of the few cases where I believe a visual distinction is just as important as having a kinaesthetic distinction between patterns. This is because continuous rhythms are already quite kinaesthetically demanding, and we already use a mix of stressful and weak patterns in continuous rhythms. We need some other way of distinguishing patterns in continuous rhythms.

In cases like this, it is always important to make sure that the start and end of a motif is visually distinguishable in some form. This is normally done by making sure that the ends and starts of motifs do not feel like they are “connected”. I normally do this by making the pattern at the very start of the motif distinctive from the rest of the motif (e.g. a roll in the first beat of the motif and not using roll patterns for the rest of the rhythm, since it is both physically distinctive and visually distinctive). I do this in my chart for Danse Macabre, as described in the “motif construction” part of this writing.

Another way of doing this would be to use distinctive chords. For example, you can use a [12] or [34] chord at the start of the motif and not use any other [12]/[34] doubles in the motif. I find [12]/[34] chords to be particularly useful in this respect for two reasons: they are visually distinctive chords, and they are the only chords where you only need to use one hand to hit.

You can also use triples at the start of each motif instead, though this is trickier to implement.

[to be continued?]