A new notation for freestyle moves

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The original idea behind the Add-system, trying to describe the concepts of a move, was, in my mind, the best idea to get. But we must by now admit that certain people do certain moves 'easily' because they have trained, and because they have trained they are the once who this system concerns. Thus, the system should be based not on what each find difficult, since possibly they have each trained something unique, but on what they do have in common; the idealized motions of footbag freestyle moves.

Of course, as for most describtive systems as Job's Notation can only catch fragments of the real-life processes. Yet, an understanding of these idealised movements could gives a better, or worse, idea about what movements occur in freestyle footbag, and possibly shed light upon the reasons why certain moves seem to be physically counter-intuitive.

In the following, I hope to give an understanding of Paradox introducing a new, more detailed notation of the concepts involved in freestyle moves.

Paradox and X-Dex have each been introduced to the Add-System due to lacks in its ability to describe moves – and people's ability to not appreciate the fact that the system was not designed to judge difficulty. To get rid of these two 'super-natural' entities, Pdx and Xdex, I change two things; firstly, a concept, Position Change, is introduced to capture rotation of the body, and secondly, a more detailed view of dexes is incorporated into the notation. There will be no analysis of Stall-adds, and, in general, Adds seen as a point-system is not being regarded, and no mention of the Cross Body concept. The folowing is to be seen wholly as a description of the moves of freestyle.

1 Dexes

In the following, I will divide a dex into two half dexes, hdexes, introduce the Eternity Factor and reverse the full-dexness of a dex due to up- and downtime.

I believe that the Add-systems view on dexes is over-simplified when it concerns more modern freestyle concepts. Since the moves have gotten a bit too advanced for the system, we should take a look and re-define dexes so not to bend the system to fit the players accepting 'difficulty' as an excuse to make up rules, instead of fitting the game. To begin with, I divide dexes in to halves, *hdexes*. This will help give a more just picture of some dexes – I shall return to why very soon. Of course dexes could be divided more, but for now this does not seem necessary. It could be changed if it was thought over.

1.1 The Eternity Factor

If the the bag is set really high, the result is a lot of time to do things that tumble against the E-factor. Say the bag is set 10 meters (hypothetically) into the air, and an attempt to do a Mirage is made. The first half dex, going under the bag, the dex that makes a Toe Mirage a full dex in the Add-system, can now be done very slowly, dragging it into "eternity", whereas on the second *hdex* have to be done very fast – because an actual dex is being done. Consider the same example with a Bubba. On the way up to the 10 meter mark the first hdex going under the bag is done very slowly, and on the way down, to 2 hdexes, first over, then under, have to be done while the time is running out. **That I call a full dex**. If the Add-system was consistent, a Bubba would 'be' as much dex as a Barrage[1]. This unfairness could come from the alleged fact that you have to do only 1dex at the bottom of the downtime when doing a Bubba, where you need to do 1dex and 1hdex to do the Barrage. Consider Clipper-set Mirage vs. Bubba; same thing, hdex vs. dex – but this one the Add-system got – for some reason.

1.2 Uptime/Downtime

Introducing this new notion of the E-factor, one thing is important; it is reversed when it comes to sets. If you do a very high Atom Smasher, you must hurry to do the first hdex, but have very good time to hdex under the bag to make the first dex full. If you do a Toe Blur, you have to hurry first under the bag, then over (both hdexes being done before the E-factor) to make the first dex full. Stepping vs. Bubba-set – same thing; hdex and dex. The In the Add-system the Bubba-set is counted as a dex – and not a hdex – because once you get over the bag, you have (a very long time) to do the last part of the dex, dexing under (for the second time).

Not counting hdexes that tumble agaisnt the E-factor renders Atom Smasher a 2 hdex move and Toe Blizzard a 2 dex move. This may seem odd now, since this system should make the notion of X-Dex unnecessary. Part of the explanation comes by introducing Position Change.

1.3 Position Change

The idea behind Position Change is to simplify motions, idealising them to one, the Position Change. In real life you can do both Spinning Near Clippers and Pdx Whirls without turning your body, but simply by pulling the set. Yet you cannot complete every trick with out rotating – think of a Spinning Clipper. Therefore, it is necessary to have the spin. The pulling we can be with out. And so, we work only with the spinning element, and call it Position Change.

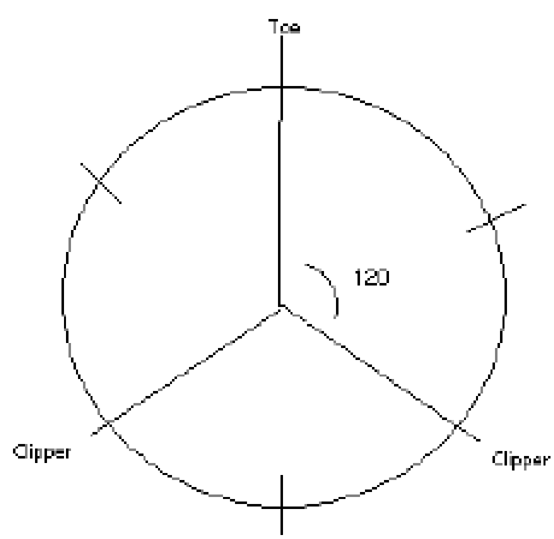
[1] Since the hdex undr the Mirage counts. Thus, for consistency, the first hdex of the Bubba should count as well: in total, 3 hdexes.

Since in real life sets are not always straight, one might think that Position Change allows 'cheating', Add-hunting. This might be true. I accept this, since you Either have to do the Position Change, Or do the Position Change and drag the set Or simply drag the set. In any scenario, you have to move the bag from one position to another – either by moving yourself or moving the bag (on the horizontal level). Both extremes are hard in their own way and both have certain advantages and disadvantages.

I have chosen to idealise the movements to only straight sets since this is far easier catching formally, and, as said, pulling can be idealized away using Position Change, whereas the reverse is not true. Let us look at Pdx Whirl. As stated, you can complete this trick by pulling and of course by some pulling and some position change. Now, since we work only with straight sets and therefore no pulling, the only thing left is the Position Change. To do a Pdx Whirl you need to change your position from one Clipper to the other in an inspinning rotation, completing a 240 degree turn.

1.4 The Degrees of Position Change

Again, to idealize, the positions between the two Clippers and the Toe each has a space between them of 120 degrees. This may not be precise, but it seems to be the best I can come up with[2]. That the two Toe stalls are positioned in the same place might be a bit troubling, but making two distinct positions – it would ruin the handy idea of 120degree intervals.



[2]But get up, and see for your self. I find this division Quite fair.

Imagine that the bag, as assumed, is set straight, from the right Clipper. Then turning 120 degrees around the center of the figure to the right, would make the bag be in the right position for a toe stall. If a full 360 spin is done a $Clip > Spin > SameClip$ results – regardless of whether it be a Spinning Clipper or a Far Osis. The Far Osis can be done, when playing, without spinning, but not here. Far Clippers, like the Pdx Whirl mentioned before, need a 240 positon change – going from one Clipper, past the Toe area to the other Clipper. Osis and Spinning Near Clipper are each a 120 shift in position, though I have a comment on 'Spotting' later. Finally a Clipper to either Toe, and here the system has flaw, is set to 120 – there should of course be a small difference between the two Toes, yet this is ignored so far – as mentioned.

Furthermore, we also need certain marks for where dexes are being done. This part have cost me quite a lot of thought and I'm still not quite sure of how to formalize it. To sketch my problems and the useful points I've come up with so far, I will begin by analysing a very simple, yet treacherous, example; Toe-set Mirage vs. Clipper-set Mirage – both done completely downtime, of course.

According to the analysis earlier, the E-factor etc., both moves are 1 hdex moves. Thinking of the Position Change I noticed that the Clipper-set Mirage has a 120 shift (from Clipper to Toe) where the Toe-set Mirage has none. This means that when a Clipper-set Mirage is being done, more is 'being done' that when a Toe-set Mirage is being done – which seems rather counter-intuitive, and made me think about what was missing.

2 Problems, dex-position, notation and tweaking.

If we first look at the Clipper-set Mirage, the initial problem is to locate the exact place the dex is being done and what relations the dex has to the position change. One could suspect that part of the position change was done in the process of dexing – if you dex, you also do a position change. This might be correct, yet it is also possible to do the same position change without dexing. From Clipper to Same Toe still requires a 120 position change, and it is therefore possible to regard the dex as something extra – an entity of its own, which we are able to analyse on its own. Again to idealise things, I assume that a dex is done on an infinitely small amount of space – again, here is a flaw, an over-simplification. To keep this in the scheme of things, it is important to point out that thinking of dexes in this manner means that dexes are done with a frozen hip – the leg simply sticking out from the hip, unable to move out of its position, and unable to make part of the position change unnecessary.

The Clipper-set Mirage dex is done as one turns from the Clipper position towards the Toe position and on the first glance it seems it is being done before one has completed the 120 turn, thus between (if Toe is set to 0 and Clipper to 120) 120 and 1. It is also done after a bit of turning, that is not on top of the Clipper. This means it is done between 119 and 1. How to identify where

Exactly the dex is being done, I have no idea. Yet it seems to me that it is not unreasonable to assume that it is done at 60.

Assuming this, a Clipper-set Mirage is formalizable in the current manner:

$$Clip > [p60] > opIn > p60 > opToe$$

This notation is a more detailed version of Job's Notation, yet changed considerably. The notation is build over the schema: $Uptime > [Peaktime] > Downtime$, where the [....] marks the peaktime. I put a '>' known from Job's Notation, after each 'Add'. The notation here then says "*Clipper-set to Peaktime where a 60 position change is done to Downtime where a dex from in to out is done with the opposite leg to a 60 position change to an opposite Toe Stall.*"

I think it will be handy to introduce a '/', meaning 'while'. This is to be used along with the dex: $Clip > [p60] > opIn/p60 > opToe$.[3]

If we accept that the dex is being done at 60, this will resolve the problem of the non-position changing Toe-set Mirage since a Toe-set Mirage should be formalized in this manner:

$$Toe > [p60] > opIn/p - 60 > opToe$$

Here, the '$p - 60$' means that a position change is being done, but in the opposite direction of the second part of the position change. Unlike '$Same/Opp$' the '$p/-p$' shall *not* change by the previous component but be set by the first position change done in the move.

The notation above shows that in each Mirage, equally much is 'being done', yet what is being done is not the same: In a Clipper-set Mirage, the position change-rotation is only going the one way, whereas the position change in the Toe-set Mirage changes direction.[4]

2.1 Problems so far / Atom Smasher vs. Scrambled Atom Smasher

On the other hand, since I assume that the leg cannot move from its position and again looking at where a dex will be done, and down myself, it seems more reasonable to set the dexing position to $30 \ldots 20$. This means though, if dexes are done at 30 fx., that a Toe-set Mirage only will include 60 position change, where the Clipper-set Mirage still will include 120. On top of that, the frozen

[3] $Clip > [p60] > opIn/p60 > opToe$ is to be understood as equivalent to $Clip > [p60] > p60/opIn > opToe$.

[4] Remember; the leg 'stick out' from the hip at approx. 60 degrees. Thus, it is not possible, under this analysis, to do the Toe-set Mirage without turning. This is highly controversial though.

hip will result in serious problems once we reach full dexes since it will either impossiblelize these or result in a position change nightmare. The idea of the frozen hip then has to go, then, since dexes cannot result in a position change nightmare since the two are separate entities. Well, as a metaphor it was to be used then.

And 60 it shall remain in the following. As mentioned earlier Atom Smasher will due to the more detailed look on dexes become a 2 hdex move, where Toe Blizzard is a 2 dex move. Therefore it seems a lot more is being done in the latter move. Let's take a closer look at those two moves and one of the problems of what I have described so far entails.

When doing an Atom Smasher, first there is a Toe-set, then a back-spinning position change of 60 while half-dexing out to in followed by the peaktime, where a -120 position change is being done followed by an in to out half-dex while doing a position change of 60.[5]

$$Toe > p60/opOut > [p - 120] > opIn/p60 > opToe$$

Total: 2 hdexes, 240 PosC.

Now, since the fullness of set-dexes is reversed due to uptime/downtime, the 'going under the bag'-part of the dex in the Quantum-set is counted as part of the dex, it seems that something is being counted twice; The position change is necessary, because without doing it, it is impossible to dex. Well, to attack this in another way, I will start with something I am able to formalize; a Scrambled Atom Smasher/Atomic Illusion.

$$Toe > p60/opOut > [p - 60] > opOut > opToe$$

Here the Illusion starts already after at position 0, the centre, which is due to its start from the centre of the Toe field whereas Mirage starts from the outside. That is; the dex is done within one area, being from where the dex begins, in the Illusions case right next to the Toe, to where it ends, again, in the Illusions case, at position 0, the Centre (the position of Both toes). A Mirage is also done within the same zone, but since you so easily, as in a Butterfly, can fall through this dex, it does not matter where the set comes from, so the felling of the Mirage being confined to one zone gets blurred. But where the Illusion starts in the centre, a Mirage starts on the side, at 60.[6]

[5] To spell it out, since new notation can be hell to grasp: Assume you set from your left to. What the notation un the text says then is:

First, set from left toe. Then turn 60 degrees to the right, while dexing Out to In. Then the peaktime starts. During peaktime, turn 120 degrees to the left. Then the peaktime ends. Then turn 60 to the right, while dexing In to Out. The stall on your right toe.

[6] Under this analysis, then, an illusion becomes a 0 pos.ch., 2 hdex move, whereas Mirage becomes a 120 pos.ch., 1hdex move.

Since there is talk, by me, about a centre In and Out relates perfectly. In to centre, Out from centre. Ironically enough, compared to Job's original use of the terms.

I am still trying to make a point about the Quantum-set and the position change. And this shall be, that there be no position change before the set, Quantum. For as an (fully, including up/donwtime) reversed Illusion, the Quantum takes its start by the Toe and ends having done the full dex – without a position change.

This now leads me to be able to formalize Toe Blizzard vs. Atom Smasher:

$$\begin{array}{ll} & Toe > opIn > [.] > opOut > opToe \\ vs. & Toe > p-60/opOut > [p120] > opIn/p-60 > opToe \\ & \text{Total: 2 dexes, 0 pos.ch. } vs. \text{ Total: 2 hdexes, 240 pos.ch.} \end{array}$$

Since both the Quantum and the Illusion respectively start and end at 0, there is no position change. Seeing it this way, one could be inclined to think of a p120 and a hdex 'equally hard' or 'worth equally much'. As I said, I don't believe difficulty can be put on fomula, but is wholly subjective. Further; remember that the dex position could be moved to 20, resulting in less pos.ch. relative to a spin relative to dex.

2.2 *pgo* and *pno*

This way of regarding Quantum and Illusion, I think it is obvious that there is something wrong with the Atom Smasher. The problem is that if the position change markers are moved from the Atomic set, it is not possible to explain how there can be a 120 pos. ch. -60 pos.ch. still ending at 0[7]. The same way the 'going under' the bag in Quantum didn't matter, this shall not matter, and we shall not make an exception in the rule, but a rule of the two exceptions!

Formalized, it goes like this:

$$\begin{array}{ll} \text{Toe Blizzard} & Toe > opIn(pno,s) > [.] > opOut(pgo,s) > opToe \\ \text{Atom Smasher} & Toe > opOut(pgo,o) > [p120] > opIn(pno,o) > opToe \end{array}$$

Here, the $(pgo,s)\,/\,(pno,o)$ is about the dex: I've marked that the dexes ends either on the same side, 's', or opposite side, 'o', of the dexing leg, relative to where it began, to indicate whether or not the dex is full ('s', same side start&end – a full dex) and I have marked whether or not the bag initially is, within the front zone, either on the wrong or the right side of the leg for the dex

[7]Hopefully, it is obivous that the algebra is off.

by typing Position GO! or Position NO! This covers both the mysterious p60 of the Atomic-set and of the Mirage – *and is therefore mysterious within*[8]. This is an indicator that can be used to notice changes in position changes, or *position stops* – maybe it is a good idea to have a term. “Mirages fulldexness have ’been replaced’ by a hdex and a *pno*.” ‘*Pgo*’ can be seen as a way of showing the fall-into-ability of a dex; if a dex is marked *pgo* it means that one is in the correct position to do the dex, especialy with respect to momentum. One deos not have to stop one rotation to enter the dex.

Pno on the other hand marks that the rotation is wrong; if you spin and end such that the bag is in the correct field to do the dex, but you cannot just fall into the dex, the position of the bag relatie to the dexing leg is off. This wil result in a stop in rotation – hence the term Postion Stop.

These position stops are what I suspect the myth of Paradox is all about, but let’s see, but first, a summary.

2.3 Notation summary

Position change: $p60$ / $p-60$, where 60 could be many other numbers.

The first number that occurs within a move-description determines the way all following numbers are to understood; the positive numbers are the marks the first rotational direction of a move. The total rotation / position change doen in a move is calculated by adding the positive value of ecah postion change-parameter.

If a dex has been perfomed before the first postion change, and the rotation is counter to the direction of the momentum created by doing the dex (since a bit of position changing IS going on), the position change will take a negative value.

Position GO!/NO! (*pgo*/*pno*) , following a dex:

pgo is to be read: the bag is in the correct position relative to the dex being done – it is possible to fall into the dex, not changing the momentum. *pgo*/*pno* "sucks up" additional postion change degrees – *and are mysterious within.*

Full / half-dexes (s/o), following a dex:

s is to be read; dex ends on the same side of the leg as it begun. Thus, it is full. This is the case of Illusion: the dex begins from the outside of the centre, moves in aorund the bag, and returns to the outside of the centre (iff the dex starts *pgo*)

o is to be read; the dex ends on the opposite side of the leg as it begune. Thus, it is only half. This is the case of the Mirage (iff one is in *pgo*): the leg

[8] Thus, the algebra of the moves are not working; the *pgo*/*pno* "sucks up" the rest of the position change-degrees. Recall; if the dex-psotion is set to 0 (which is almost assumed wrt. the Quantum-set and the Illsuion), the algebra would fit again.

starts inside the centre, and moves out of it, over the bag, which then in return ends in the centre, completing the dex.

s's and o's can be iterated to mark more dexes being done in one: for instance, an Infinity would be marked (pgo, o); a barfly could then be (pgo, so); first an Illusion dex (full) is being done, then an infinity (half), but all is done in one. Or maybe (pgo, os): first a Butterfly-ish dex (half) is done, the some odd dex (full).

I don't want to choose any of these, so I choose something obviously Wrong: (pgo, oo). Read such: a double dex is done in one motion, ending on the opposite side of where it began – thus, $1\frac{1}{2}$dex.

The dex of a Toe-set Double Illusion would then be: (pgo, ss): a double dex is done all in one, ending on the same side it began. 2 dexes.

Examples:

SS Clipper	$Clip > [.] > Clip$
OpS Clipper	$Clip > [\mathrm{p}240] > Clip$
Toe-set Mirage	$Toe > [.] > opIn\,(pno, o) > opToe$
Clipper-set Mirage	$Clip > [.] > \mathrm{p}120/OpIn\,(pgo, o) > opToe$
Paradox Mirage	$Clip > [\mathrm{p}120] > sIn\,(pno, o) > opToe$
Toe-set Illusion	$Toe > [.] > opOut\,(pgo, s) > opToe$
Bubba	$Clip > [\mathrm{p}120] > opOut\,(pno, s) > opToe$
Paradox Illusion	$Clip > [\mathrm{p}120] > sOut\,(pgo, s) > opToe$
Infinity	$Clip > [\mathrm{p}120] > sOut\,(pgo, o)\,/\mathrm{p}120 > opClip$

Just a few words: When to do the position change is not common to all either, so, for instance, you may be doing the position change of the Clipper-set Mirage durin the uptime, or during the downtime. This can as well be captured by the notation, which can be seen as a benefit of this more detailed notation, and can be generalised to the other moves.

As an example, here are 4 ways of doing Bubba:

All Downtime	$Clip > [.] > \mathrm{p}120 > opOut\,(pno, s) > opToe$
Part Downtime	$Clip > [\mathrm{p}120] > opOut\,(pno, s) > opToe$
Part Uptime	$Clip > \mathrm{p}120 > [.] > opOut\,(pno, s) > opToe$
All Uptime	$Clip > \mathrm{p}120 > opOut\,(pno, s) > [.] > opToe$

The Toe-set Mirage is set to be *pno* since it is not spoosible to fall into the dex – on the other hand, there is no momentum to be stopped, so this might be a bit misleading. Clipper-set Illusion, on the other hand can (more or less) be fallen into, but htere is momentum to be stopped. All of these things are, of course, free for discussion.

Now I will return to a main subject; trying to figure out what Paradox consists of.

3 The hunt for the monster

We're supposed to be looking out for this rather large, greenish 'Double Hip Pivot':

Far Pick-Up	$Clip > [p120] > sIn(pno, o) > sToe$
Pdx Mirage	$Clip > [p120] > sIn(pno, o) > opToe$
Pdx Whirl	$Clip > [p240] > sIn(pno, s) > opClip$
Pdx Blender	$Clip > [p240] > sIn(pno, s) > p120/sClip$
Hellraiser	$Clip > opIn(pgo, o) > [p120/D(pgo, o)] >$ $opIn(p?o, o) > p60 > opIn(pno, symp, o) > opToe$

Do you see the similarities in the 'paradox'-components?[9]

The Far Pick-Up and the Pdx Mirage should give themselves. I have had problems with the Whirl, but it constitutes itself needing no position change out of the Clipper zone. If it had been a Mirage-variety, it had been necessary to pass to the centre and back out. Once it comes to whether or not the dex in the Blender actually is in a pno position, I was at loss, but I thought of the reverse, a Gyro Rev. Whirl-set – and the Rev. Whirl there is definitely out of position. So a Blender must be the same – just in reverse. Then there is the Hellraiser. I have put in a duck there, treated the same way as a dex (duck 'o', dive 's', weav 's', zulu 'oo'). I do not think that it is possible to stand more or less out of position for a certain dex after a duck or dive without this being a thing ascribable to the duck/dive itself. I do not think of moves after ducks and dives as having position stops that matter either – I will leave the question-mark there, but personaly I think of it as a pgo-situation.

A (short) indicator of Symposium has been added. I think it would be nice as well to have an indicator for Whirl and Swirl dex positions.

We came from the big Paradox Hunt and we shall return shortly – first, a comment:

Remark 1 *Leg-Over/Pick-Up-dex fullness*

The line that defines whether or not a hdex is complete, is whether or not the set/stall is on the same foot. A Leg-Over is precisely not an Illusion – very close to a dex though, now just an hdex and an ending, a part of an hdex, rounded down. Pick-Ups on the other hand get very special treatment. Since a Pick-Up is very close to being a Mirage, that is, very close to being a complete hdex, I'll will round up, so it 'becomes' an hdex.

[9] They are all *pno*.

3.1 Non-Paradox moves?

Pdx Illusion	$Clip > [p120] > opOut\,(pgo, s) > opToe$
Far Rev. Whirl	$Clip > [p240] > opOut\,(pgo, o) > opClip$
Muted Atomic Clipper	$Toe > opOut\,(pgo, o) > [p - 120] > sClip$

Here, the Pdx Illusion does not follow the example of the other previous Paradox moves above, the Far Rev.Whirl is also *pgo* and then finally I have taken the Muted Atomic Clipper. Since this in every single aspect is a reversed Pdx Mirage this Must have the same qualities when it comes to position changes and stops. Therefore there must also be a 'paradox' motion in this move. This time it is reversed and is a dex followed by a position change 'going the other way' – thus the $p - 120$. This we also find in Pdx Rev. Drifter/Torque, yet these are two downtime examples. Pdx Illusion is not a member of this club – there is no position change after the dex. Same thing with a Barfly, no position stop causing the Add-systems Paradox, but a position change going one direction.

Pdx Illusion	$Clip > [p120] > opOut\,(pgo, s) > opToe$
Barfly	$Clip > [p120] > opOut\,(pgo, oo)\,/p120 > opClip$

In the case of Pdx. Rev. Drifter and Pdx. Rev. Torque, these are not the reverses of the original moves; the Exact reverse of a Pdx. Drifter would be a Nuclear Same Clipper.

Since the dex of a Pdx Mirage, Drifter, Torque etc., is done downtime, the same dex must be done uptime if the move is reversed. This means that *all moves including an Atomic-set to a inspinning position change falls under this category* – that is, are Paradox if one is to be consistent in my analysis.

3.2 Double Paradox

There has been talk of whether or not moves could include two Paradox Adds under the Add-system, and I hope to show now, that at least it is possible for moves to include a double 'double hip pivot'. A 'smaller' move falling under this category would be Atom Smahser:

Atom Smasher $\quad Toe > opOut\,(pgo, o) > [p - 120] > opIn\,(pno, o) > opToe$

There is both a position stop when the momentum is turned after the set $(p - 120)$ and one when the second dex is done. A clearer example would be 69, which, apart from the set position and stall position, is exactly like Atom Smasher:

69 $\quad Clip > p120/sOut\,(pgo, o) > [p-120] > opIn\,(pno, o)\,/p120 > opToe$

In 69 it is even marked by the initial and ending position change going the other way than the position change done during peaktime. There are two position stops, compared to just one in Pdx Mirage etc. Had anyone ever hit a downtime Pdx Miraging Inspinning Pdx Torque, I'm sure great debate about Double Paradox moves would have sparked with an outcome being that this move 'is' Double Paradox. At least it includes a double position stop:

X $\quad Clip > [p120] > opIn\,(pno, o) > p-360 > opIn > p240 > opClip$

3.3 Conclusion

There is no paradox, just momentum-changes: position stops, double hit pivots – and far more moves than earlier "given the add Pardox" excibit these features. Further: these are captured by a more detailed notation, such as the one given here, and therefore, if this is accepted, no more discussion of wheather or not a given move is Paradox need be had. Just formalize it!

4 More moves

Smear, 1	$Toe > sIn(pgo, o) > [p60] > opIn(pno, o) > opToe$
Smear, 2	$Toe > sIn(pgo, o) > p60[.] > opIn(pno, o) > opToe$
Smear, 3	$Toe > sIn(pgo, o, smp)/p60[.] > opIn(pno, o) > opToe$
Ripwalk, 1	$Clip > opIn(pgo, o)[p240]opOut(pgo, o) > opClip$
Ripwalk, 2	$Clip > opIn(pgo, o) > p60 > [p120] > p60 > opOut(pgo, o) > opClip$
Ripwalk, 3	$Clip > opIn(pgo, o)/p60 > [p120] > p60/opOut(pgo, o) > opClip$
Ripwalk, 4	$Clip > opIn(pgo, o) > p120 > [.] > p120 > opOut(pgo, o) > opClip$
Ripwalk, 5	$Clip > opIn(pgo, o)/p120 > [.] > p120/opOut(pgo, o) > opClip$
Toe Blur	$Toe > opIn(pno, s) > [.] > opIn(pno, o) > opToe$
Toe Blur set Toe Stall	$Toe > opIn(pno, s) > opIn(pno, o) > [.] > opToe$
Gyro Jughandle, 1	$Clip > p180 > [.] > sIn(pgo, o)/p300 > sToe$
Gyro Jughandle, 2	$Clip > [p180] > sIn(pgo, o)/p300 > sToe$
Far Xbd Rake	$Clip > [p240] > XbdToe/p120$
Far Wrap, 1	$Clip > [.] > Inside/p120$
Far Wrap, 2	$Clip > [.] > Inside > p120$

I've marked Smear3 with 'smp' in the dex, meaning 'simple'. Which Ripwalks do you do? Xbd Rake and Gyro Jughandle? How do you like it?! One of Kuhn's wishes was results. Nevertheless, one thing I cannot do is to fit Pendulum in. Toe-set same Pendulus could be $Toe > sToe/p120$. But Pendulum requires a non-straigh set and ZERO rotation – and can therefore not be captured by this formalism. The same goes for Rake.

5 Whirls and Swirls

When it comes to Whirls, I know there is a big difference between the dexes I have dealt with earlier and these – the position is always different, since this probably will be what defines a Whirl different from a Downtown Miraging SS Clipper. Whirl-dexes are done quite a lot more horizontally – if a Mirage and a hippy Illusion is seen as vertical. Adding degrees to the knee and hip joints seem a bit extreme, so I simply mark Whirl-dexes with something... $opIn(pno, s, whirl)$? Too long. $opIn(\dots knee)$would only be slightly better. $opWIn(pno, s)$ it is then. This way, you're also told in the beginning what it's all about – not like in German.[10]

(Peaktime) Whirl	$Clip > [opWIn(pno, s)] > opClip$
Pdx Whirl	$Clip > [p240] > opWIn(pno, s) > opClip$
Pdx Blender	$Clip > [p240] > opWIn(pno, s) > p120 > sClip$
(Downtime) Rev. Whirl	$Clip > [.] > opWOut(pgo, o) > opClip$
Far Rev. Whirl	$Clip > [p240] > opWOut(pgo, o) > opClip$
Far Dyno	$Clip > [p240] > opWOu(pgo, o) > p120 > sClip$

From a Dyno there is not far to a Gyro Rev. Swirl – I will mark the dex-position different (opSOut, opSIn for Swirls) but the resemblance in the notation is obvious:

Swirl	$Clip > [sSIn(pgo, o)] > sClip$
Inspinning Near Swirl	$Clip > [p360] > sSIn(pno, s) > sClip$
Pdx Blender	$Clip > [p240] > sWIn(pno, s) > p120 > sClip$
Rev. Swirl	$Clip > [sSOut(pgo, o)] > sClip$
Inspinning Near Rev. Swirl	$Clip > [p360] > sSOut(pgo, o) > sClip$
Far Dyno	$Clip > [p240] > opWOu(pgo, s) > p120 > sClip$

Swirls dex-fullness are treated the same way Leg-Over/Pick-Up was.

[10] Illusions done leggy, are they knee-powered in the same way Whirls are? $Toe > opWOut(pgo, s) > opToe$?

6 Further problems? Limitations?

I have just a comment concerning Spinning. The way the system is constructed, the only thing visible is the rotation of the low body. This means that every time it is required to spot the bag after spinning a position change of 240 degrees is made by the torso – but this is not captured by the current formalism, but it should not be That hard to incorporate.

Furthermore; a system like this should almost have some sort of time-tracker so the difference between a Whirl and a Ducking Whirl could be tracked. Currently, the system simply runs one 'one size fit all'-dex speed. And what effect would the player's height have on this?

And one last thing; Plants – plants are definitely worth taking into consideration when it comes to footbag notation – what I have described so far cannot tell the difference between a Pdx Mirage with and without plants. And since there was debate about whether or not planting cancelled out Paradox it might seem to matter. Anyways, it happens so a system trying to describe what happens should include them. Plants should easily be incorporated into the current notation.

7 A new system, so what?

Actually, I have no hopes that this system is to be used for judging or anything like it. Especially once plants are incorporated, it will be useless to count a Shred30 in terms of this system. On the other hand, is it not as redundant to use the Add-system? I think so – it just takes less work. On the other hand, not having Any criteria for judging a Shred30 makes it very hard to judge. As a true humanist I can conclude that I can say nothing since a notation system for freestyle footbag is more or less useless since it will a) either be too complex to use easily or b) will be too simple to resemble the game.

A way a complex system could be used for judging is through assigning Points to certain components of the system (Position stops could reward points, dex more points than hdex, two full dexes rewards extra points (the role of Xdex) etc.). One thing such a point system would be good for, would be to distinguish the system which is supposed to resemble reality and the system designed to judge difficulty, yet the latter system is not anything I have Any hopes of designing since it strides against my conception of freestyle footbag as a game. As I noted in the beginning, I believe that an objective measuring system for footbag is impossible, since difficulty of moves are entirely subjective and therefore cannot be judged on any objective scale.

One thing I do hope reading this will have provoked in the reader is a deeper insight into the theoretical aspects of Paradox and Xdex. I hope that Paradox at least can be seen a bit more consistent then it has been so far. Reversing the dex-fullness of uptime dexes and noting the relationship between full dexes and position stops gives the impression that the 'Double Hip Pivot' also happens in certain moves not fulfilling the original definition of Paradox moves (Clipper-set followed by a Same Full Dex followed by a Opposite component) – as seen in Atom Smasher, Atomic Same Clipper and Reverse Whirling Same Clipper.

One thing I cannot do that Benjamin Job did in his 1 page paper is to give a universal formula for a complete footbag list. There is no reason why this cannot be done, it is mearly to follow the same procedure Job did, but in this case with a lot more possibilities for "sentence-construction". If you take a look at the Job's Notation Paper on Footbag.org and try the same method including the position changes done during, before and after any possible dex in any possible combination with position change option between multiple dexes in a set alone, I think the reader would see the difficulty. But the more credit it will give.

Finally, I would like to say that I in no way intend this system to be interpreted as 'a truth' – as Steve Goldberg wrote in an old mail: "The system is entirely arbitrary – one way is not better than another."

I believe he is right about the first part. The second is definitely up for discussion.