TEAM CONFIDENCE STUDY

OBJECTIVE

Have a quantification of team confidence influence on realization formula, hidden and not visible as bonus/malus in ratings. All after the HTs fix on extreme TC level influence, i don't remember the post id and myhattrick about that, but there should be any.

MODE

We'll reach the objective by a research on CA matches, where we'll know TC of the CA team and ratings of both teams, obviously where at least 1 CA happened.

The reason why I'll use Counter attacks is pretty simple, because they're all always reported, so it's the only way to have a valuable database.

You could think that even matches with 10 chances in total or 5 in an half time are valid, that's the same assumption of this site http://www.hattristics.org/pub/statAttackConversion.php *but as you can see from the results there this would be even worse, because if we repeat the same match 100 times and we'll take the 5 ones where there are only "important" chances you can be sure that attack will be a lot overestimated.*

Once we'll have enough matches we'll split every single CA chance with the relative rating of attack (ca team) and defence (opponent) on the relative side, team confidence and if is a goal or a missed chance.

Then we'll merge data in different range according to compare attack vs defence, by checking the same range we'll see the real influence of team confidence.

TECHNICAL LIMITS

The main limit is the manual work, we need non public data (TC level) so an automatic tool is not possible, we'll have then less data and so a less accurate formula or even simply idea.

Anyway our mission is not to create an hattrick engine perfect simulation, only to have an idea, since afaik none did it before and this should make you think if really we know all of hattrick engine or we simply don't understand what we don't know.

DATA

First of all the legend, those are the number that are linked to TC levels:

completely exaggerated	9
exaggerated	8
slightly exaggerated	7
wonderful	6
strong	5
decent	4
poor	3
wretched	2
disastrous	1
non-existent	0

The rating compare between attack and defense instead follow the usual formula, the same of the chance assignment, because probably it's the same for the realization, when TC is a neutral value, so:

A^3/(A^3+D^3)

Where:

A: rating of attack (CA on the right means rating on the right), converted according to the scale where disastrous very low is 1 and so on.

D: defense opponent rating (CA on the right means left-defense)

^3: Exponent

Those are the range considered:

Range	
0%	10%
10%	20%
20%	30%
30%	40%
40%	60%
60%	80%
80%	100%

This means that every match where the At vs Def compare result in a value between 0 and 10% are merged in the first range and so on.

TC ranges are:

- from 1 to 4
- 5
- 6
- 7+

For each TC range there will be a table, further divided according to at vs def ranges.

Every table will have 3 columns:

MediaInt	%Real	totDati

MediaInt is the average range percentage of the at vs def compare for the considered data, this means that if we'll have 3 cases where the compares are 31,35 and 38% the average will be 34,6%

%Real is simply the average percentage of realization, if in our 3 cases we have 2 goals and one missed chance the result will be 66%

TotDati is the number of cases that we have in the relative range, usually pretty low due to the problem described before, in our example would be 3.

Tables

From disastrous to decent		
MediaInt	%Real	totDati
3%	0%	18
12%	0%	3
24%	25%	4
34%	50%	2
52%	25%	8
63%	0%	3
89%	60%	5

Strong		
MediaInt	%Real	totDati
4%	7%	15
16%	0%	8
25%	8%	13
34%	33%	6
50%	50%	22
74%	67%	9
87%	100%	2

Wonderful		
MediaInt	%Real	totDati
3%	0%	14
15%	0%	4
27%	50%	4
37%	14%	7
49%	58%	12
70%	69%	13
88%	83%	6

From slightly exaggerated to upper levels		
MediaInt	%Real	totDati
4%	0%	20
18%	33%	3
27%	80%	5
34%	60%	5
51%	79%	14
69%	50%	10
85%	100%	7

Merged

Ranges	da 1 a 4	5	6	7+
0-10%	**0%**	**7%**	**0%**	**0%**
,10-20%	**0%**	**0%**	**0%**	**33%**
,20-30%	**25%**	**8%**	**50%**	**80%**
,30-40%	**50%**	**33%**	**14%**	**60%**
,40-60%	**25%**	**50%**	**58%**	**79%**
,60-80%	**0%**	**67%**	**69%**	**50%**
80-100%	**60%**	**100%**	**83%**	**100%**

ANALISYS

In order to analyze data we'll take the central range, between 40 to 60%

Ranges	da 1 a 4	5	6	7+
40-60%	**25%**	**50%**	**58%**	**79%**

Basically, for team confidence between strong and wonderful we can use the chance assignment formula with exponent=3, with TC higher or lower factors change, could be a different exponent, a multiplier factor or even an addiction, the meaning doesn't change.

What is important is that the difference between a low confidence level and an high one is really high.

Thanks to GM-Aldo70 I add also a possible estimation of the TC contribution formula, just keep in mind that the low amount of data make this formula probably not really accurate, you can always refer to the "real" data of the tables pasted before:

Prob = Att_f / (Att_f + Dif^3)

where Att_f = Att ^3* f(confidence)

and

f(confidence) = exp ((confidence - 5,5) / 3)

Here a table based on this formula:

Confidence	Description	P
0	non-existent	15,9%
1	disastrous	20,9%
2	wretched	26,9%
3	poor	33,9%
4	decent	41,7%
5	strong	50,0%
6	wonderful	58,3%
7	slightly exaggerated	66,1%
8	exaggerated	73,1%
9	completely exaggerated	79,1%

Where, p is the probability of achieving a goal assuming that the Attack is equal to Defense (the chance is 50% with strong confidence).

CONCLUSIONS

I'll try to explain with some examples the possible usability of this study:

1)**Important cup match, will play pic with second lines in league match and i'll badly loose, my TC decrease from 7 to 4.**

I gained TS and saved important players, but i lost 30% of possible scoring chance, up to 50% if we assume that a won in league match would have raised TC.
This means that in those 2 possible matches, with low or high TC, a excellent attack rating with low TC is considered as passable by match engine, in the other one match engine take it as formidable/outstanding, in the third case we assumed up to brillant.

2) **League match with worst team in our league, overconfidence? i'll fire psyco, my TC decrease from 7 to 5/4**

2 cases possible, first one that with higher TC i would have really overconfidence and the other one when even with high TC i wouldn't had oc.
Without OC obviously there's nothing to say, we would do a really bad choice.

But let's suppose we'll have OC for sure, we'll loose in midfield rating, something like 5-10% of ball possession? then 15-20% of possibilities to have a chance.
But if we fire psyco we will loose for sure 20/30% of scoring chance.
Now, the difference is not so clear to state that is better to keep psyco, because if we don't score a chance result will not change, but if we don't have a chance on our side this means that the other team will have one more chance, so we should double value.

So, we could loose 30/40 points in chance assignment in one case and we loose for sure 20/30 points in scoring possibility for sure in the other.

Another thing to add is that is possible to recover from an OC level between first and second half time.

FINALLY

This study was ideated in the Hattrick library federation (71795), most of the data come from Italian defence trainer federation (9981), Defense Trainers (2929) and Italian national forum, as already mentioned the final formula is an elaboration made by GM-Aldo70.

(GM-)HomerJay 18 february 2009