

0 Preface

The purpose of this document is not to explain the setup of any software, but the style of coding.

Data Volley 4 is referred to / abbreviated as **DV4**.

VolleyStation is referred to / abbreviated as **VS**.

The term **scoutman** is used worldwide and (as a matter of simplicity) of course also refers to the many **scoutwomen** around.

0.1 Philosophy behind this Codebook

Before we are going to explain **HOW** to record certain situations, we try to clarify **WHY** we need to code data in a specific way.

0.1.1 Try, not to judge

When coding, our approach is to minimize judgements of the scoutmen.

When following this codebook, there are only very few situations remaining, where scoutmen have to give a judgement, which are:

- a) quality of the first touch
- b) some grey zone between K1 and K7 setter calls and
- c) block/defense at the termination of a rally.

Details will be explained in the relevant chapters.

0.1.2 Different approach to Setter Calls

There clearly seem to be two different philosophies on what a setter call means. Let's explain this different thinking with the K1 and K7 setter calls.

We know that many scoutmen (because yes, that was the original intention) take setter calls as an indicator on **HOW** the middle is jumping (K1=near to setter, K7=far, KC=away).

In contrary to that, we try another approach, because otherwise we won't have any information on **WHERE** the middle is jumping.

So, we use K7 for the middle running for the so called "gap" and K1 if running more or less to the middle of the net.

If I would code the "old way", we would lose information (on **where** the middle is) and partly won't be able to figure out, if a setter plays isolation or overloads.

0.2 Important Software Settings

We have to assume, that the readers of this codebook are familiar with the settings of their software (DV4 or VS or other).

The settings shown here are used solely to underline coding practices and their pictures will be referred to in the relevant chapters.

0.3 Default Codes Settings

This is the **VS** Settings. In **DV4**, the relevant table (Tools / Scouting Options / Default Scouting) looks similar.

Settings

Default codes

Skill	Ball Type	Effect	Default Skill
S	M	-	☐
R	M	+	☐
A	H	-	☐
B	H	+	☐
D	H	-	☐
E	H	+	☒
F	H	+	☐

For scoutmen using **VS**, maybe setting "E" (sEt) as the default skill is easier for data entry. But this is just a suggestion.

0.4 Match Flow

VS introduces a new "Match Flow" in its settings, where one can define exactly, which action is allowed after another. If data entry does not follow the rule defined in the match flow, the play in question is marked as an error.

DV4 has no exact counterpart, but tries to deal with it in several tables. Consequently, **DV4** can only be less strict in following a match flow.

The **VS** match flow is a per-element table and will be referred to in the chapter of the specific element as a reference to underline the coding style.

It is our goal, that this coding style is also being followed by **DV4** users.

0.5 Examples

There are many example videos, referred throughout this document (using green background color), on how to code certain situations.

[The example videos are available through this link.](#)

1 Serve

1.1 Serve Zone

a) Standard: 1,7,6,9,5 as starting zone

1.2 Serve Type

H = Standing float

see [example01](#)

M = (default) Jump float / hybrid float

Q = Power jump

T = Variation (short, low power or the like)

see [example02](#)

a) The **M** and **Q** service types have to be distinguished by type of swing, not by type of jump:

float toss → jump swing = SQ

see [example03](#)

jump toss → float swing = SM

see [example04](#)

b) The **T** service is coded on an "off rhythm" serve, like a short serve after a long power serve or completely different angle than before (see [example30](#)). Switching between float and hybrid serve is not considered as a variation.

1.3 Serve Match Flow

The **VS** match flow shows the possible continuations in a rally after serve of a certain quality.

Serve Reception Attack Block Dig Set Free ball

Effects	#	+	!	/	-	=
Active ⓘ	☒	☒	☒	☒	☒	☒
Crosses net ⓘ	☒	☒	☒	☒	☒	☒
Points scored ⓘ	Playing v	None v	None v	None v	None v	Opponent v
ALLOWED GAME CONTINUATIONS ⓘ						
Skill	Reception	=	-	!	/	+#
	Attack					
	Block					
	Dig					
	Set				=	
	Free ball					

1.4 Serve Definitions

- Serves will be synced to the serving toss of the server (see nearly all example clips).
- Starting and ending zones will be coded **by clicking coordinates**.
- N = "Let" serves have to be coded, if the net touch is changing the ball trajectory.
- Match Flow defines clearly, that there is no S# without a R= on the other side.
- Match Flow also defines, that there is a possible E= after a serve, which could denote rotation/lineup faults or similar.

2 Reception

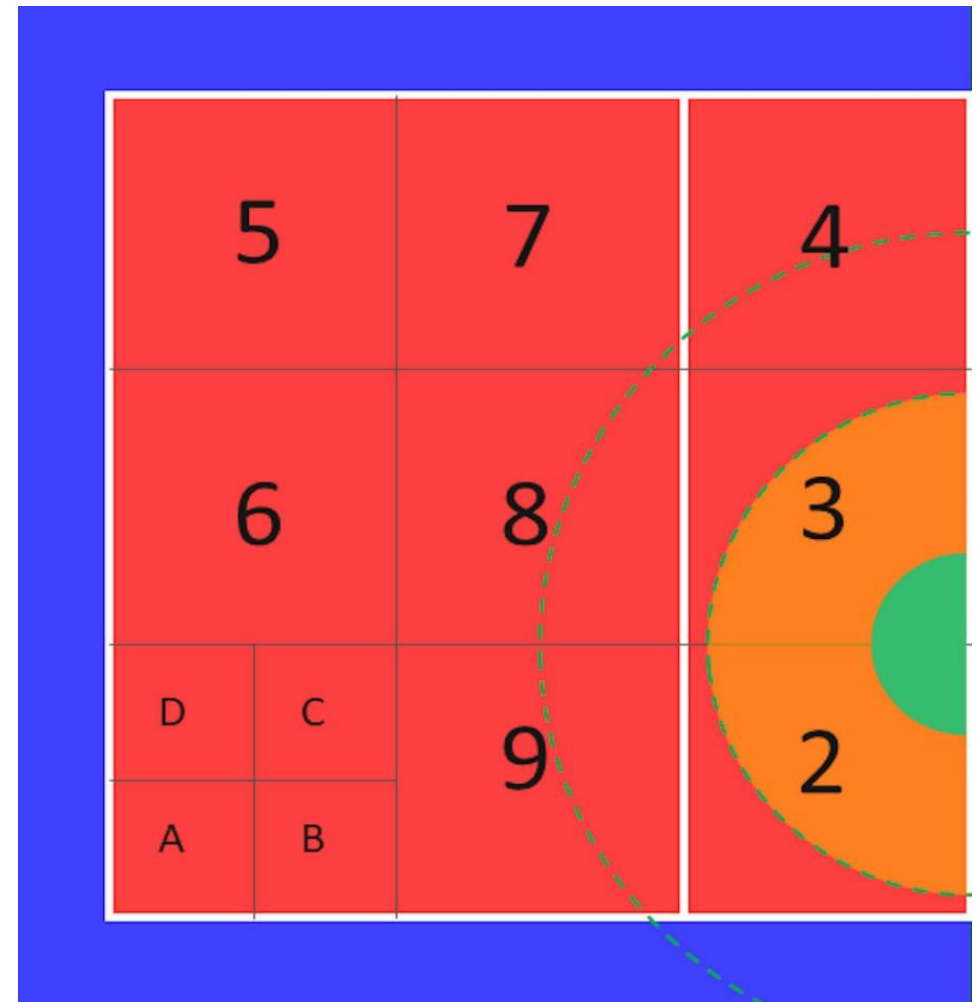
The reception/passing quality scale is the **same for first attack (R) and transition (D and F)**, because there are setter calls (see 3.1 Setter Calls) for transition also.

2.1 Reception Zone

- The **vertical projection**, where the player touches the ball will be coded as passing zone.

2.2 Reception / Dig / Freeball Quality

- # Perfect in green zone (right graph), parabola ok, all attackers available for setter see [example05](#)
- + 1st tempo possible, ball in yellow zone (graph above), parabola ok, setter moving, 3-4 attackers available see [example01](#), [example12](#)
- ! Reception outside the yellow zone, but within the dashed circle (graph above), parabola ok see [example06](#)
- Emergency pass only, including forced one handed set (according to DV4 handbook definitions) see [example03](#), [example07](#), [example08](#)
- / Overpass or passing quality forces a freeball to be played (no matter if 1 or 2 touches after) see [example09](#), [example10](#)
- = Rally ends in receiving court (see 2.5 ☐ for exceptions) see [example11](#)



2.3 Reception Extended Code (posture)

L, R = outside stand base area,
W = below knees or falling forward,
O = Overhead,
M = middle line (default).

RECEPTION	
L	On left
R	On right
W	Low
O	Overhand
M	Middleline

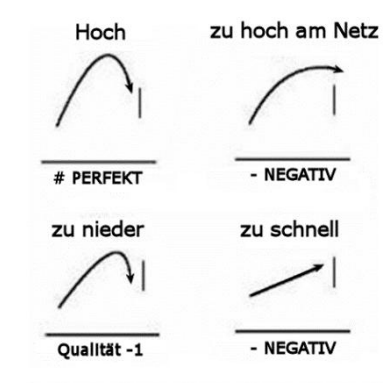
2.4 Reception Match Flow

Serve **Reception** Attack Block Dig Set Free ball

Effects	#	+	!	/	-	=
Active ①	☒	☒	☒	☒	☒	☒
Crosses net ①	☐	☐	☐	☒	☐	☐
Points scored ①	None v	None v	None v	None v	None v	Opponent v
ALLOWED GAME CONTINUATIONS ①						
Skill	Reception					
	Attack			+!/#=		
	Block					
	Dig					
	Set	+!/#=	+!/#=	+!/#=	+!/#=	
	Free ball			+!/#=		

2.5 Reception / Defense / Freeball Definitions

- The trajectory of the 1st touch will be coded according to the DV4 handbook (see graph on the right).
- Receptions, where the ball does not go back to the serving team, will be coded as "="
 Exceptions are individual errors in the second or third touch.
- Every service ace has to be assigned to a reception player for statistical reasons.
 Hence there is no 1S# code, only a 1S.2= (see also 1.3 d)).
- Please see examples for zones and extended posture code
 example02 = W in 9C, example01 = O in 8A, example06 = L in 5C, example09 = R in 6B
- By definition, R/ quality forces a freeball to be played - no matter if 1 or 2 touches after. Those touches are not coded, only the R/ (see also 2.2 Reception / Dig / Freeball Quality and example09).
 As the ball crosses the net after a R/, attack and freeball being shown in the same column, are from the opponent team, which can either receive a freeball or have a free smash (PR).



- Match Flow defines, that there is a **mandatory set** code after reception / defense / freeball (see also 3.6 e) and 6.4 Defense and Freeball Match Flow). Consequently, a reception / defense / freeball that is played or used as a set for an attack on the second touch, has to be **coded twice - once as R / D / F and once as a set of the same player**.
See **example28** with D and E of the same player and Px after.
- The only attack one can see in the match flow is possible by the opponent (see the check mark on "Crosses net") after an R/ (overpass).

3 Setting and Setter Calls

The philosophy about setter calls is explained in "0.1.2 Different approach to Setter Calls".

Setter calls are the **same for first attack and transition**, as is the quality scale for the first touch (see 2.2 Reception / Dig / Freeball Quality).

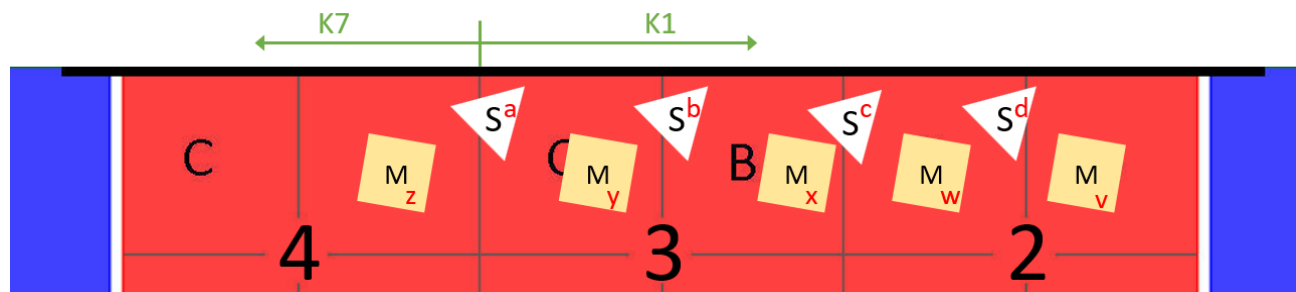
3.1 Setter Calls

K7	shoot	middle jumps in zone K7, independent of setter position
K1	1 "quick"	middle jumps in zone K1 and in front of the setter
K2	2 "back"	middle jumps in the back and close to the setter
KS	"slide" back	middle jumps in the back and away from the setter, heading antenna
KE	no 1 st tempo	middle out of play or too late

Only the starting position of the middle distinguishes between K1 and K7, like shown in the graph below.

Please consider the following situations:

- M** (middle) in position **z** will always be coded as **K7**, no matter if **S** (setter) is in position **a**, **b**, **c** or **d**
- M** in positions **y**, **x**, **w** or **v** will always be coded as **K1** if in front of **S**
- M** in the back of **S** will be coded as **K2** if **M** running vertical to the net
- M** in the back of **S** will be coded as **KS** if **M** jumping away to the antenna on P2
- Important:** From the opponent blocker's point of view, **M** starting in position **z**, but playing a "head" or "gun" jumping towards the setter, will still be coded as **K7**, even though he maybe lands at position **y** or **x**. **Starting position matters**. Same principle applies when playing a "push", jumping from position **x** to **y**, will be coded as **K1**. See **example16** = K7, **example17** = K1.



3.1.1 Additional Setter Calls for live-Scouting

As it is much easier to type KW instead of K73C in live scouting, one may use "shift" setter calls, especially as many legacy spreadsheets use those shift codes. It is not recommended to use them, but if required the following codes should be used.

KV	1 shifted to 4	middle jumps in zone K1, with setter being pushed forward
KZ	1 shifted to 2	middle jumps in zone K1, with setter being pushed backward
KW	7 shifted to 4	middle jumps in zone K7, with setter being pushed forward
KY	7 shifted to 2	middle jumps in zone K7, with setter being pushed backward
K4	2 shifted to 4	middle jumps in the back of the setter, with setter being pushed forward

- Those codes are not internationally "normalized", but for German Bundesliga, we should use this as a standard.
- During correction (re-scouting) those setter calls definitely **have to be** converted. This can be done by automatic rules (KV/KZ → K1, KW/KY → K7, K4 → K2), setter subzone to be corrected afterwards.

3.2 Setting Zone

Setter position (at the moment of touching the ball) will be coded as sub-zones (i.e. 3B, 2C, ...) but **do not have to be** clicked.

3.3 Setting Quality

Default "+", correction only for E/ or E= (set in DV4 Scouting Options or VS Default Codes).

3.4 Setting Extended Codes

1 = for 1 handed set

2 = 2 Hands (Default in DV4 Scouting Options)

3 = (bump) for bump set

4 = for everything else (like emergency etc.)

- As it is not possible to have automated sets in VS, the default "2" can be omitted.
Having no extended code will be interpreted as "2". But in this case, the exceptions 1, 3 and 4 still have to be coded.

3.5 Set Match Flow

Serve Reception Attack Block Dig **Set** Free ball

Effects	#	+	!	/	-	=
Active ⓘ	☒	☒	☒	☒	☒	☒
Crosses net ⓘ	☐	☐	☐	☒	☐	☐
Points scored ⓘ	None ▾	None ▾	None ▾	None ▾	None ▾	Opponent ▾
ALLOWED GAME CONTINUATIONS ⓘ						
Skill	Reception					
	Attack	#+!/=	#+!/=	#+!/=	#+!/=	
	Block					
	Dig					
	Set	=	=	=	=	
	Free ball			#+!/=		

3.6 Setting Definitions

- Setter calls are the **same for first attack and transition**, **because** one can easily ask, if there is a reception before to filter first attacks.
- If the middle is not in the play, no matter how good the pass, it is coded as KEx.
- Please see examples for setter calls, setting zones, quality and extended code
 example01 = K7 (because middle in zone 4), quality + (default), zone 3C,
 example03 = (R-, so no setter call) in 3C with extended code 3 (bump set),
 example07 = K7 in 3C with extended code 1 (1 hand set). Setter call exception (despite R-, like mentioned before),
 example12 = K1 (because middle in zone 3) in 2C,
 example13 = K2 (because middle behind setter) in 3C,
 example14 = KS in 3B
 example15 = KE (because middle is out of play) in 3D
- E/ is coded in situations, where the attacker cannot attack the ball or has to play a freeball to the other side.
- Match Flow defines, that there is a **mandatory set** code after reception / defense / freeball (see also 2.5 ☐ and 6.4 Defense and Freeball Match Flow). Consequently, a reception | defense | freeball that is played or used as a set for an attack on the second touch, has to be **coded twice - once as R | D | F and once as a set of the same player**.
 See example28 with D and E of the same player and Px after.
- The E= after a set, that remains in the teams court, enables the coding of unforced errors - like playing an easy ball (that cannot be considered as an attack) into the net or out (see example31).

4 Attack

An attack is recorded with an attack code only, if it puts pressure on the opponent.

An attack (swing) where the defending team on purpose acts without block ("NO" call in most teams), should be coded as PK.

Everything else (virtually resulting in a freeball) is not recorded as attack, but as R/, E/, D/ or F/ respectively of the action that causes the attack not being possible.

4.1 Attack Types

Many scoutmen see attack types as superfluous information. But they can be very useful:

Q = first tempo attacks (time from setter's hand to attacker hitting the ball is below 0.3s)

U = pipe attacks (time 0.3 to 0.5s)

T = fast (sideout) attacks on wing positions (time 0.6 to 0.9s)

M = medium (half) attacks (time 1.0 to 1.5s)

H = high attacks (time above 1.5s)

O = other attacks (stopgaps, fakes, emergency solutions)

Using the type definition in this codebook, one can build reports, that can analyze attacks independent of attack codes, solely by using the attack types (and maybe omitting type O).

4.2 Attack Combinations

X1	3C	Q	Center	1 front quick	1 st tempo close in front of S	
X2	3C	Q	Center	2 back quick	1 st tempo close behind S	
XC	3L	Q	Center	"push" 1-7	1 st tempo starting close, jumping away from S	see example17
XG	3R	Q	Center	"head" or "gun" 7-1	1 st tempo starting away, jumping towards S	see example16
X7	3C	Q	Center	7 shoot quick or "gap"	1 st tempo far (min. 1,5m) in front of S	
XS	2R	Q	Center	"slide" back	1 st tempo behind S, jumping to pin	see example14
PP	3C	O	Setter	setter dump	S feinting on 2 nd touch	
X8	9L	T	Back	fast set	P1	
C8	9L	M	Back	half set	P1	
V8	9L	H	Back	high set	P1	
XX	9L	T	Back	fast set	inside P1	see example20
VX	9L	H	Back	high set	inside P1	see example21
X6	2L	T	Back	fast set	P2	
C6	2L	M	Back	half set	P2	

V6	2L	H	Back	high set	P2		
X4	2L	T	Back	fast set	inside P2	see	example22
V4	2L	H	Back	high set	inside P2		
V3	3C	H	-	high set	P3		
X5	4R	T	Front	fast set	P4	see	example18
C5	4R	M	Front	half set	P4	see	example18
V5	4R	H	Front	high set	P4	see	example18
X9	4R	T	Front	fast set	inside P4	see	example19
V9	4R	H	Front	high set	inside P4	see	example19, example08
X0	7C	T	-	fast set	P5		
C0	7C	M	-	half set	P5		
V0	7R	H	-	high set	P5		
XP	8C	U	Pipe	fast pipe set	P6		
VP	8C	H	Pipe	high set	P6		
XR	8C	U	Pipe	fast pipe set	between P6 and P5		
VR	8C	H	Pipe	high set	between P6 and P5		
XB	8C	U	Pipe	fast pipe set	between P6 and P1		
VB	8C	H	Pipe	high set	between P6 and P1		
XT	3R	M	Front	inside "cross/tandem" ball	P3	Front attacker attacks between C and S	see example24
X3	3L	M	Back	back "cross" ball	P3	Back attacker attacks between C and S	
XF	2R	M	Back	back "hook"	P2	Back attacker fakes X3 and goes to pin like X6	see example23
PR	3C	O	-	free smash		i.e. after overpass	see example29
P2	2C	O	-	attack on 2nd touch	P2	attacker (not setter) attacks directly after defense	
P3	3C	O	-	attack on 2nd touch	P3		
P4	4C	O	-	attack on 2nd touch	P4		
P1	9C	O	-	BACKROW attack on 2nd touch	P1		
P6	8C	O	-	BACKROW attack on 2nd touch	P6		
P5	7C	O	-	BACKROW attack on 2nd touch	P5		
PK	3C	O	-	giveaway		"generic attack", player does uncontrolled attack	see example25
PN	8C	O	-	BACKROW giveaway		"generic attack" from backrow	
PO	8C	O	-	offensive return on 1 st touch		used carefully for "laser" played on purpose	

4.3 Attack Quality

#	Kill / Point
+	Ball back to attacking team as freeball (opponent team cannot attack)
!	Ball possession by attacking team after opponent block ("block control" or non-intentional)
–	Ball possession by opponent team (opponent can/could attack, default)
/	Blocked attack (kill block)
=	Attack Error (net, out, line fault, ...)

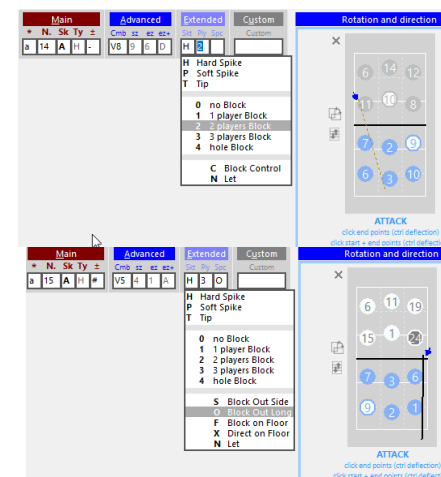
4.4 Attack Direction

- Starting and ending zones will be coded **by clicking coordinates** (see both graphs at the right - example from DV4 Wizard).
- For deflected attacks (A!, A/ or A#**S**) the **coordinates aimed to by the attacker** will be clicked.
See **example27** and upper right picture: attacker aims position 6A, ball gets deflected, defense in position 9C.
- For attacks, where the attacker aims for the block fingers rather than the court (see **example03** and lower right picture), the attack vector ending zone is **in the attack direction but outside the court**.

4.5 Attack Extended Codes

ATTACK	
H	Hard spike
P	Soft Spike – Top Spin
T	Tip

BLOCK	
0	No block
1	1 player block
2	2 players block
3	3 players block
4	Hole Block



4.6 Attack Match Flow

Serve Reception **Attack** Block Dig Set Free ball

Effects	#	+	!	/	-	=
Active ①	☒	☒	☒	☒	☒	☒
Crosses net ①	☒	☒	☒	☒	☒	☒
Points scored ①	Playing v	None v	None v	Opponent v	None v	Opponent v
ALLOWED GAME CONTINUATIONS ①						
Skill	Reception					
	Attack					
	Block	/-	-	!	#	+=
	Dig	=	/=			#+!-
	Set					
	Free ball					

4.7 Attack Definitions

- Attacks will be synced to the set.
- An attack that is blocked back to the attacking team, always results in a **A! aB!** combination.
- A+ means: the ball comes back as a freeball (D/ or E/).
- An overpass of the opponent is recorded as **PR attack**, if it goes back to the opponent, no matter if it is smashed or blocked (see **example29**).
- 1st extended code: **P** only for real soft spikes. "Power tips" are **T** tips (see **example17**).
- 2nd extended code: number of blockers will be coded on every attack. "0" will not be omitted.
A blocker that is more than a shoulder length from the block, is counted as single block.
1+1 = 1 block, 2+1 = 2 block. 4 = hole block or split block (even if intentional) or open block (2 block, where one blocker cannot close).
- 3rd extended code:
on kill: **O**, if on top of block, **S** all other tool blocks (even if in the back of the attacker), **X** is not coded
on "block control": **C** only if evident for the scoutman (see **example26** for 'block control')
on error: **A** = antenna, **N** = into net, **I** = net touch **and** line fault.
- No point for the attacker is recorded on blocking error (net, line fault, etc.), **except** the attack was killed anyway.
In such a case the blocking error will not be registered.

5 Block

A block action is only recorded, if the block **clearly** touches the ball.

5.1 Block Quality

#	Block kill
+	Attack mitigated, ball possession by blocking team (default)
!	Block touch, ball reflected back to the attacking team
-	Block touch, no attack possible (D/ or D= follows)
/	Block-out / tool block
=	Blocking fault (net, line fault, ...)

5.2 Block Match Flow

Serve Reception Attack **Block** Dig Set Free ball

Effects	#	+	!	/	-	=
Active ⓘ	☒	☒	☒	☒	☒	☒
Crosses net ⓘ	☒	☐	☒	☐	☐	☐
Points scored ⓘ	Playing v	None v	None v	Opponent v	None v	Opponent v
ALLOWED GAME CONTINUATIONS ⓘ						
Skill	Reception					
	Attack	#+!/=	#+!/=			
	Block					
	Dig	=	#+!/=		/=	
	Set					
	Free ball					

5.3 Block Definitions

- Quality, zone and extended code will be inherited from the attack.
- A block counts as a kill, even if there are (unsuccessful) defense efforts afterwards, which are not recorded.
- There is no set after a block in the Block Match Flow above. If the first touch is played intentionally as a set, to be attacked on the second touch, please record first a touch plus a set of the same player. See **example28** with D and E of the same player and Px after.
(see also 2.5 □)
- No double coding** for block/defense. That means, there is no B= D= or B/ D= combinations. Either it is B= or B/ or B- D= or just D=.
This rule is clearly reflected in the block match flow above.
- According to "4.6 Attack Match Flow", a blocking error is only recorded, if it interrupts the rally.

6 Defense and Freeballs

6.1 Defense Quality (also for Freeballs)

Quality of defense and freeballs is rated exactly the same as in reception.

6.2 Defense Extended Code

Not required. But if recorded, it should go after the **DV** manual:

DIG	
S	On spike
C	Spike cover
B	After block
E	Emergency

6.3 Defense and Freeball Definitions

- The zone for defense will **not** be inherited from the attack (**set in DV4:General Scouting/Modify code/Att-Dig off**), but coded manually in **DV**.
Otherwise it would not be possible to code deflected attacks (see 4.4 b)).
- The F element is **NOT about playing, but about receiving** a freeball.
If a player has to give away a ball as a freeball for the opponent, it is either
 - on the touch(es) before, that force the player to give away the ball (R/, E/, D/ or F/), where the "giveaway touch" is not coded, or
 - a pseudo/emergency/generic/not really attacking touch, where (for syntax reasons) we have to code an attack with code PK or PN.
- The zone for a freeball will be coded manually (without subzone).
- R/, E/, D/, F/ always cause a freeball code for the opponent.

6.4 Defense and Freeball Match Flow

Both Match Flow tables are exactly the same.

Serve Reception Attack Block Dig Set Free ball

Effects	#	+	!	/	-	=
Active ⓘ	☒	☒	☒	☒	☒	☒
Crosses net ⓘ	☐	☐	☐	☒	☐	☐
Points scored ⓘ	None ▾	None ▾	None ▾	None ▾	None ▾	Opponent ▾
ALLOWED GAME CONTINUATIONS ⓘ						
Skill	Reception					
	Attack			+!/#=		
	Block					
	Dig					
	Set	#+!/=	#+!/=	#+!/=	#+!/=	
	Free ball			+!/#=		

- a) Match Flow defines, that there is a **mandatory set** code after reception / defense / freeball (see also 2.5 ☐ and 3.6 e)). Consequently, a reception / defense / freeball that is played or used as a set for an attack on the second touch, has to be **coded twice - once as R / D / F and once as a set of the same player**. See **example28** with D and E of the same player and Px after.

7 Special Cases

7.1 Other Definitions

- a) For lineup errors and penalties, "unforced errors" ("**E=**") of the player (or "**0**" if coach, team or not evident) will be coded.
- b) Lineup errors have to include the serve (only after a serve a lineup error occurs).
- c) **Please do not use the comment function** of **DV** (character ">"), as this always causes verifying errors.
- d) Use a custom code on the "E=" code instead, like:
 - ROT = rotation error
 - RED = penalty (red card)
 - CHA = Challenge lost
 - ...

7.2 Challenge

- a) Lost rallies due to unsuccessful in-rally challenges, should also be coded like "unforced errors" above.
The FIVB lately abandoned the in-rally-challenges and allows the coaches to wait for the end of the rally before requesting the challenge "after-rally-challenge").
If this rule will be inherited by the VBL, the scoutman simply records the findings of the challenge referee.
- b) If a challenge is requested by a coach, the scoutman has to record a custom code "CHA" at the end of the rally.
- c) If the scoutman happens to encounter controversial decisions of referees or referee faults, please mark them with custom code "REF" and synchronize, so the refereeing commission can use those for training purposes.

8 Change Log

- Better description of R/ in chapter 2.5.
- New chapter 3.1.1 Additional Setter Calls for live-Scouting
- New set Match-Flow to allow for the coding of unforced errors, explained in chapter 3.6 f)
- New attack combination PN (BACKROW giveaway) to avoid unnecessary errors or weird coding
- Correction of attack combination PK for starting zone 3
- Corrected a definition error for A+ in 4.7 c)
- Refined chapter 4.7 g) to clarify 3rd extended code I meaning net touch **and** line fault
- New block Match Flow to allow D= of the opponent after B#
- Correction of authors of the document
- Correction of spelling errors and wording